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VOL. 14 No. 14 April 3, 1964

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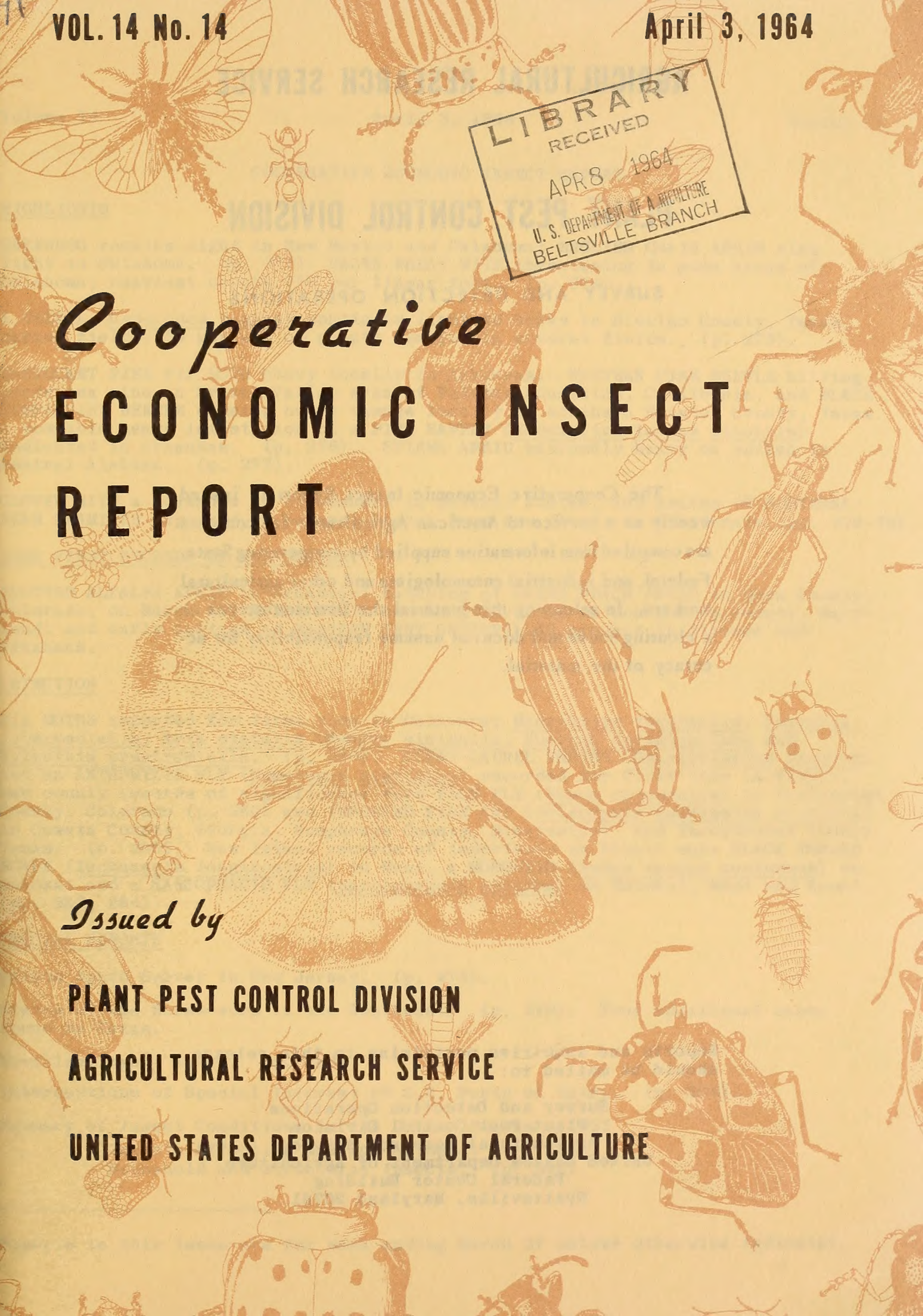

Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 April 3, 1964 Number 14

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GREENBUG remains light in New Mexico and Oklahoma; ENGLISH GRAIN APHID also light in Oklahoma. (p. 273). BROWN WHEAT MITE threatening in some areas of Oklahoma; heaviest counts 750 per linear foot. (p. 274).

A WEEVIL (*Hyperodes texana*) continues light to heavy in Hidalgo County, Texas, carrot fields; 50 percent of plants damaged in several fields. (p. 275).

NANTUCKET PINE TIP MOTH heavy locally in Arkansas. WESTERN PINE BEETLE killing ponderosa pine in French Valley area of Palomar Mountains, California, and BLACK TURPENTINE BEETLE causing heavy damage locally in southern Houston County, Texas. A possible heavy infestation of a PINE SAWFLY (*Neodiprion taedae linearis*) indicated in Arkansas. (p. 276). SPIREA APHID extremely heavy on spirea in central Alabama. (p. 277).

CLOVER MITE a nuisance to homeowners in several States, and swarms of SUBTERRANEAN TERMITES reported in several States from New Jersey to California. (pp. 278-79).

SOME FIRST RECORDS OF THE SEASON

SPOTTED ALFALFA APHID in Arkansas; hatching of GREEN PEACH APHID in Mesa County, Colorado, on March 18; APPLE APHID hatching March 23 in Montgomery County, Maryland; and early instars of EASTERN TENT CATERPILLAR present in Alabama and Arkansas.

DETECTION

Six MOTHS reported for first time in Delaware; *Macrobotys thestealis*, *Herculia intermedialis*, *Arta statalis*,(*Mompha eloisella*, *Eucosma dorisignatana* and *Xylesthia pruniramiella*. (p. 280). CUBAN-LAUREL THRIPS (*Gynaikothrips ficorum*) and an ANTHOMYZID FLY (*Mumetopia nigrimana*) recorded for first time in Hawaii. New county records of significance were FACE FLY (*Musca autumnalis*) in Washington County, Colorado (p. 280) and IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) in Coweta County, Georgia, Humphreys County, Mississippi, and Nacogdoches County, Texas. (p. 280). New Island records of importance in Hawaii were BLACK THREAD SCALE (*Ischnaspis longirostris*) on Maui, a MOSQUITO (*Aedes vexans nocturnus*) on Molokai and a SARCOPHAGID FLY (*Sarcophagula occidua*) on Molokai, Maui and Kauai. (pp. 283, 284).

SPECIAL REPORTS

Potato Aphid Survey in New Jersey. (p. 275).

Status of the Screw-worm in the Southwest. (p. 279). Four additional cases found in Texas.

Hawaiian Insect Notes. (p. 283).

Interceptions of Special Interest at U.S. Ports of Entry. (p. 284).

Summary of Insect Conditions in the United States - 1963
Insects Affecting Man and Animals. (p. 286).
Household and Structural Insects. (p. 300).

Reports in this issue are for week ending March 27 unless otherwise indicated.

WEATHER OF THE WEEK ENDING MARCH 30

Winter continued over much of the Nation during the entire week. At the beginning of the week, while one storm moved eastward across the northern Great Plains, another storm was developing in the Great Basin. Blizzard conditions -- high winds, low temperatures, and the air filled with blowing snow -- prevailed from the eastern slopes of the northern Rocky Mountains to Minnesota. Winds reached 50 m.p.h., temperatures dropped far below zero, and visibility was, at times, less than one mile. Unsettled weather continued in the Far Northwest. Showers fell in the lowlands and snow in the mountains. Snow continued in the southern Rocky Mountains. Snow, which began at Flagstaff, Arizona, on Sunday, accumulated to 21 inches by midnight Tuesday. On Tuesday morning, the temperature at Lewiston, Montana, plunged to 20° below zero. The arctic air spread eastward and southward. North Dakota registered subzero temperatures on six consecutive nights. The highest temperature in North Dakota during the week was 33° at Dickenson on the 26th.

Warm, moist, gulf air moved northward above the arctic air. Snow fell from the Rocky Mountains eastward across the northern Great Plains. Sleet, freezing rain, and severe thunderstorm activity occurred south of the snow area. A thunderstorm at Topeka, Kansas, produced a combination of sleet, freezing rain, and hail. Hail as large as golf balls fell at Kansas City, Missouri. At some places, thunderstorms and snow occurred simultaneously. Several tornadoes struck the mid-section of the country on Wednesday, March 25. Some of the places hit by tornadoes are Garwood and Centerville, both in Missouri, and Addison, Alabama. By Friday morning, severe cold gripped much of the eastern half of the Nation. Subzero temperatures prevailed across the Northern States from North Dakota to Michigan and freezing temperatures extended as far south as the northern portions of Mississippi and Alabama. Birmingham, Alabama, registered 31° Friday morning. A few stations in northern Georgia registered minimum temperatures in the lower 20's. Meanwhile, temperatures increased over Western States, becoming much warmer in Montana and rising to above normal in Nevada.

A heavy snowstorm hit Chicago, Illinois, Sunday morning, leaving from 3 to 9 inches in different parts of the metropolitan area. This was followed by more arctic air dropping the temperatures to near zero over much of the northern Great Plains. The snowstorm moved eastward, leaving snow over the Great Lakes region, the upper Ohio River Valley, parts of Pennsylvania, and nearby areas. Dulles Airport, near Washington, D.C., received 5 inches Monday morning.

Temperatures averaged from 1° to 4° above normal over the Trans-Pecos and Edwards Plateau of Texas, along the coast in Washington, and over parts of Pennsylvania and nearby portions of neighboring States. Over the remainder of the Nation, temperatures averaged below normal. Over much of the northern Rocky Mountains and northern Great Plains temperatures ranged from 10° to 25° below normal. The largest departures were in North Dakota where the temperatures averaged from 21° to 25° below normal. Only a few widely scattered areas west of the Mississippi River received more than 0.50 inch of precipitation. Most of these scattered areas were at high elevations such as Denver, Colorado, and Flagstaff, Arizona. The heaviest amounts, 2.00 inches or more, fell over northern Georgia and nearby parts of neighboring States. A few stations in northern Georgia and northeastern Alabama registered more than 5.00 inches on March 25 and 26. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

ALFALFA WEEVIL (*Hypera postica*) - DELAWARE - First and second-stage larvae on alfalfa in eastern Sussex County; injury light. (Burbutis). COLORADO - Alfalfa showing green in Prowers County; no indications of weevil to date. (Ext. Serv.). Most alfalfa still dormant in State with controls for this species being applied. (Bulla).

CLOVER LEAF WEEVIL (*Hypera punctata*) - OKLAHOMA - Light numbers noted in some alfalfa checked in southwest and west central areas. (Okla. Coop. Sur.).

A WEEVIL (*Hypera brunneipennis*) - ARIZONA - Considerable pupation occurring in alfalfa in Yuma and Maricopa Counties; most of larval population full grown, with only few small larvae found. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (*Colias eurytheme*) - ALABAMA - Numerous adults noted in flight in Hale County. Few noted in Tuscaloosa County. (Shuler).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - CALIFORNIA - Medium on alfalfa in Seeley, Imperial County. (Cal. Coop. Rpt.). ARIZONA - Infestations light to very spotted in alfalfa in Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). OKLAHOMA - Only occasional specimens found in scattered southwest area fields checked; most inspections negative. (Okla. Coop. Sur.). ARKANSAS - First specimens noted in Washington County (northwest); numbers low. (Ark. Ins. Sur.).

PEA APHID (*Acyrthosiphon pisum*) - ARIZONA - Populations general but still noneconomic in alfalfa fields of Pinal, Yuma and Maricopa Counties. (Ariz. Coop. Sur.). OKLAHOMA - Very light and scattered on alfalfa checked in southwest, west central and south central areas; many checks negative. (Okla. Coop. Sur.). ARKANSAS - Counts remain about same as past 2 weeks. (Ark. Ins. Sur.).

COWPEA APHID (*Aphis craccivora*) - ARIZONA - Few light infestations found in alfalfa in north Gila Valley and on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (*Lygus lineolaris*) - ARKANSAS - Counts on vetch in Washington County (northwest) increased but remain low; less than one per square foot. (Ark. Ins. Sur.).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Increases noted on alfalfa fields of Yuma, Maricopa and Pinal Counties. Averaged 20 per 100 sweeps in Yuma County and 22 in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

CLOVER MITE (*Bryobia praetiosa*) - ARIZONA - Infestations on alfalfa heavy in north Gila Valley and on Yuma Mesa and light in Yuma Valley of Yuma County. (Ariz. Coop. Sur.).

GREENBUG (*Schizaphis graminum*) - NEW MEXICO - Remains light in small grain fields in Chaves and Eddy Counties; averaged 1-3 per linear foot in fields checked. (N.M. Coop. Rpt.). OKLAHOMA - Populations remain generally noneconomic on small grains throughout State. Only occasional spots in fields showed reproduction in southwest counties; most fields had only occasional specimens, or were void of infestation. One report of 50 per linear foot received from Mayes County (northeast). (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - OKLAHOMA - Light in scattered areas of southwest counties. Although few in number, this species is most numerous aphid on grains. Light numbers on upper leaves of wheat plants in southern Cotton County. (Okla. Coop. Sur.).

A FLEAHOPPER (*Spanogonicus* sp.) - ARIZONA - Very heavy on Indian wheatgrass in Yuma County. (Ariz. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Threatening in some areas. Light to moderate on wheat checked in Washita, Kiowa, Greer, Harmon, Jackson, Tillman and Cotton Counties (southwest). Heaviest counts (up to 750 per linear foot) observed in Mangum area, Greer County. Approximately 600 acres of wheat treated in Mountain Park area, Kiowa County. Surveys in area failed to reveal infestation, but some damage was apparent. Subfreezing temperatures possibly account for failure to find mites on plants. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Heavy, localized populations damaging oats in Bell County. (Hobbs, Fisher).

FRUIT INSECTS

PEACH TREE BORER (Sanninoidea exitiosa) - ALABAMA - This and Synanthedon pictipes (lesser peach tree borer) noted causing serious damage to poorly managed peach trees in Tuscaloosa, Bibb and Lee Counties. No pupation noted. (Grandberry, Cain, Shuler, et al.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - CALIFORNIA - Adults being caught in bait pans in peach orchard at Wheeler Ridge, Kern County, since mid-March. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - COLORADO - First hatching noted March 18 in Mesa County. Fruit trees mostly dormant; snow and cool weather continued. Overwintering egg counts completed in Mesa County, with 80 percent fewer eggs than in 1963. This should mean light populations in that county, with moderate numbers counted in Delta and Montrose Counties. (Bulla).

APPLE APHID (Aphis pomi) - MARYLAND - Hatching occurred March 23 on apple at Fairland, Montgomery County. (U. Md., Ent. Dept.).

APHIDS - MARYLAND - Eggs of undetermined species noted on apple twigs at locality in Cecil County. (U. Md., Ent. Dept.). DELAWARE - Young nymphs present on apple buds in areas of Sussex County. (Kelsey).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - COLORADO - Crawlers present in apricot and some peach orchards where controls not used in 1963. Some dormant spraying on fruit now being applied in Mesa County. (Bulla). FLORIDA - Severe on stem of plum at nursery in Macclenny, Baker County. (Collins, Mar. 9).

WESTERN PEACH TREE BORER (Sanninoidea exitiosa graefi) - CALIFORNIA - Heavy in almond trees in Oakland, Alameda County. (Cal. Coop. Rpt.).

HICKORY SHUCKWORM (Laspyresia caryana) - ALABAMA - Small numbers of larvae and pupae noted under few pecan trees on lawns in Tuscaloosa County. (Shuler, Cain, et al).

ITALIAN PEAR SCALE (Epidiaspis piricola) - CALIFORNIA - Heavy on walnut trees in Gilroy and apple nursery stock in Mountain View, Santa Clara County. (Cal. Coop. Rpt.).

A SOFT SCALE (Lecanium sp.) - CALIFORNIA - Probably L. pruinosum, heavy on walnut street trees in Gilroy, Santa Clara County. (Cal. Coop. Rpt.).

A PLANT BUG (Pycnoderes balli) - FLORIDA - Light on calamondin at North Miami, Dade County. Det. by R. F. Hussey. (DeHaven, Mar. 18).

YELLOW SCALE (Aonidiella citrina) - CALIFORNIA - Heavy on orange trees in Dixon, Solano County. (Cal. Coop. Rpt.).

CITRUS RED MITE (Panonychus citri) - CALIFORNIA - Heavy on lemon trees in Mecca, Riverside County. This is not normally a desert inhabiting species and occurrence in this area is unusual. (Cal. Coop. Rpt.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - MEXICO - Inspection of 3,860 traps 7,705 times in 17 States, the Federal District and the Territory of Quintana Roo negative. (PPC, Mex. Reg., Feb. Rpt.). FLORIDA - Number of traps in State now total 15,102; 475 are McPhail. Traps inspected on 3, 2 and 1-week schedules. Trapping continues negative. (PPC, South. Reg., Feb. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Biological Control Zone - Incipient infestation consisting of 9 leaves on 5 trees in grove in Municipio Villagran, Tamaulipas. This is first known infestation in area since December 1958 and is nearest infestation to chemical control zone in State of Nuevo Leon. Inspection of 58,751 trees on 172 properties showed 952 trees infested on 13 properties in Municipios Villagran, Hidalgo, Guemez and Padilla in the biological control zone of Tamaulipas. Most infestations light; several trees with medium infestations. Chemical Control Zone - Total of 88,886 citrus trees, including 742 citrus nursery trees, on 2,418 properties inspected and found negative. (PPC, Mex. Reg., Feb. Rpt.).

AN ARMORED SCALE (Diaspis cocois) - CALIFORNIA - Infesting nursery stock of Jubaea spectabilis in San Diego, San Diego County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Infesting 4.5 percent of 200 cabbage plants inspected in field at Sanford, Seminole County. Damage light. Plants ready for harvest. (Desin).

A WEEVIL (Hyperodes texana) - TEXAS - Continues light to heavy in Hidalgo County carrot fields; of 18 fields examined, 16 infested. Several fields with 50 percent of plants damaged; infestation ranged downward from this level in other fields. (Texas Coop. Rpt.).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - Nine newly infested properties found in LOUISIANA and 40 properties released from regulation. All old banks cleaned in Simpson, Jones, Lawrence and Jefferson Davis Counties, MISSISSIPPI; all properties in Amite County infested in 1962 and 1963 inspected with negative results. In ALABAMA, several bushels of infested sweetpotatoes destroyed in Mobile area retail stores; one newly infested property found in Covington County. Last 2 infested properties in Ware County, GEORGIA, released from regulation. (PPC, South Reg., Feb. Rpt.).

DARKLING BEETLES (Blapstinus spp.) - ARIZONA - Small populations continue in cantaloup fields in Yuma County. (Ariz. Coop. Sur.).

Potato Aphid Survey in New Jersey - Results of survey for overwintering eggs of potato aphid (Macrosiphum euphorbiae) show that population is up from that of 1963, but the viability of eggs is lower. Total number of eggs and percent viability, respectively, by year, as follows: 1964 - 1,192 and 45.6; 1963 - 745 and 78.3; 1962 - 411 and 74.2; 1961 - 713 and 25.2; 1960 - 178 and 74.7. (N.J. Dept. Agr.; Ins.-Dis. Newsltr., Mar. 24.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Continues a problem on lettuce in Yuma and Maricopa Counties; many winged forms present. (Ariz. Coop. Sur.).

MELON APHID (Aphis gossypii) - ARIZONA - Many winged forms found in lettuce fields in Yuma and Maricopa Counties; however, continues a problem to lettuce growers. (Ariz. Coop. Sur.).

APHIDS - ARIZONA - New infestations of Acyrthosiphon barri continue to be found in lettuce fields in Yuma County. Heaviest infestations on older lettuce. (Ariz. Coop. Sur.). NORTH CAROLINA - Unspecified species light on cabbage in Pender County. (Federonko).

THRIPS - NEW MEXICO - Unspecified species appearing on onion plants in fields throughout most of Mesilla Valley. (N. M. Coop. Rpt.).

A LEAF MINER FLY (Liriomyza sp.) - FLORIDA - Caused medium damage to 200 celery plants in field inspected at Sanford, Seminole County. (Desin).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ARKANSAS - Heavy in infested trees in Hempstead (southwest) and Calhoun (south central) Counties. (Ark. Ins. Sur.).

SILVER-SPOTTED TIGER MOTH (Halisidota argentata) - CALIFORNIA - Larvae medium on spruce trees in Elk Creek, Glenn County. (Cal. Coop. Rpt.).

WESTERN PINE BEETLE (Dendroctonus brevicomis) - CALIFORNIA - Killing over 400 ponderosa pines in 1,000-acre stand in French Valley area of Palomar Mountains. There has been a rapid buildup since fall of 1963. (R. H. Blanford, USFS). D. brevicomis and Ips sp. killing about 80 ponderosa pines in 4-acre stand in The Wilson Camp area, Mendocino National Forest. Area will be salvage logged in near future. (F. Cooley, USFS).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - TEXAS - Heavy damage reported from southern Houston County on area of approximately 500 acres. Areas logged during past few months contained heaviest concentration of attacks and control action was initiated. (Texas Forest Pest Comm.; Feb. Rpt.).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - No active infestations located on aerial detection flights in midmonth. Scattered activity observed and reported from ground operations; 7 spots located in Tyler County contained total of 34 brood trees. All infestations located were controlled. (Texas Forest Pest Comm.; Feb. Rpt.).

ENGRAVER BEETLES (Ips spp.) - TEXAS - Activity by I. avulsus, I. grandicollis and I. calligraphus increased little since previous month; no unusual activity reported. (Texas Forest Pest Comm.; Feb. Rpt.).

A BARK BEETLE (Scolytus sp.) - CALIFORNIA - Loss continues in white fir on 2,000-acre stand in Palomar Mountains, San Diego County. (Cal. Coop. Rpt.).

SPRUCE APHID (Aphis abietina) - CALIFORNIA - Heavy on Picea sp. in Belmont, San Mateo County. (Cal. Coop. Rpt.).

BLACK PINE LEAF SCALE (Aspidiotus californicus) - CALIFORNIA - Infesting over 100 sugar pines in 5-10 acre stand at Institute of Forest Genetics, El Dorado County. (L. Straw, USFS).

A NEEDLE MINER - NEVADA - Population of undetermined species light on Pinus monophylla in southern Washoe County. (Parker).

A PINE SAWFLY (Neodiprion taedae linearis) - ARKANSAS - First hatch of season observed March 13 in southern Calhoun County (south central). Indications are for possible heavy infestation this season. (Ark. Ins. Sur.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ALABAMA - Early instars present in numerous cherry and few peach trees in Lee, Tuscaloosa, Bibb and Autauga Counties. First reports of season. (Grandberry, Barwood, Shuler, Cain, et al.). ARKANSAS - Infestations continue to develop; second and possibly few third-stage larvae common in southern area. Very little food available for larvae. (Ark. Ins. Sur.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - TEXAS - Damage by this species and Malacosoma sp., probably texanum, to live oak and post oak continues over wide area in central part of State. Larvae appearing as far north as Ft. Worth. (Texas Coop. Rpt.).

GYPSY MOTH (Porthetria dispar) - Inspection of 86 trailer parks in MASSACHUSETTS revealed 23 sites infested with average of 7 egg clusters per site. One egg cluster found during inspection of 16 motels. Shipment of lumber originating in Southwick, Hampden County, found infested with 1 new and 10 old egg clusters. In CONNECTICUT, 44 cords of fuel wood and 10 plants inspected; 15 egg clusters removed from 3 plants. Inspection of potentially hazardous sites in NEW YORK within generally infested area indicates increasing number of trailer courts, truck stops and public recreation areas becoming infested. Total of 85 egg masses removed from 3 shipments of veneer logs originating in Ulster and Montgomery Counties. Inspections in NEW JERSEY and VIRGINIA negative. (PPC, East. Reg., Feb. Rpt.).

BROWN-TAIL MOTH (Nygmia phaeorrhoea) - Total of 1,805 webs cut and destroyed in the towns of Allenstown, Hooksett and Loudon, Merrimack County, and in towns of Francestown, Mount Vernon and Weare, Hillsboro County, NEW HAMPSHIRE. Inspections in MAINE and VERMONT negative. Infestation found in Dennis, Barnstable County, MASSACHUSETTS, in same general area as in 1963. Surveys in towns of Northboro and Westboro, Worcester County; Ipswich, Essex County; and in Suffolk County negative. Intensity of Dennis infestation reduced about 50 percent. (PPC, East. Reg., Feb. Rpt.).

CURRANT BORER (Ramosia tipuliformis) - CALIFORNIA - Larvae heavy in currant bushes in planting in Belmont, San Mateo County. (Cal. Coop. Rpt.).

A PLUME MOTH (Platyptilia pica) - CALIFORNIA - Light in geranium propagating stock in Vista, San Diego County. Fumigation has been successful in eliminating infestations. (Cal. Coop. Rpt.).

A BILLBUG (Sphenophorus phoeniciensis) - ARIZONA - Adults numerous in home gardens and yards in Maricopa and Pima Counties. (Ariz. Coop. Sur.).

COOLEY SPRUCE GALL APHID (Chermes cooleyi) - COLORADO - Populations heavy and very active at nursery in Denver. (Colo. Ins. Det. Comm.).

SPIREA APHID (Aphis spiraecola) - ALABAMA - Extremely heavy (50-100 per 3 inches of new growth) on Reaves, Vanhoutte and Thurnberg varieties of spirea in central part of State. Winged forms numerous and moving to less populated plants. Several species of lady beetles feeding on aphids. (Barwood, Helms, et al.).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Infesting 75 of 100 aralia plants at St. Petersburg, Pinellas County. (Bingaman, Mar. 19).

APHIDS - CALIFORNIA - Lachnus salignus heavy on pussy willow trees in Belmont, San Mateo County. Cinara tujafilina medium on Thuja sp. growing stock in Vista, San Diego County. Vesiculaphis caricis infesting azalea in Oakdale, Stanislaus County, is a new county record. (Cal. Coop. Rpt.). NEW MEXICO - Unspecified species ranged light to moderate on rose bushes in Dona Ana County. (N.M. Coop. Rpt.). OKLAHOMA - Cinara tujafilina heavy on arborvitae in Hobart (west central) and Stillwater (north central) areas. (Okla. Coop. Sur.). FLORIDA - Cerataphis variabilis infesting 25 of 100 coconut trees at Miami, Dade County. (McFarlin, Mar. 16).

A PSYLLID (Psylla uncatoides) - CALIFORNIA - Heavy on albizzia in Belmont, San Mateo County. (Cal. Coop. Rpt.).

THRIPS - CALIFORNIA - Thrips madronii medium on ceanothus in Belmont, San Mateo County. Liothrips ilex medium on Photinia arbutifolia in Crockett, Contra Costa County. (Cal. Coop. Rpt.).

EUONYMUS SCALE (Unaspis euonymi) - MARYLAND - Heavy on euonymus on 2 properties in Prince Georges County. (U. Md., Ent. Dept.). NORTH CAROLINA - Infested little leaf euonymus in Wayne County. (Jones).

BROWN SOFT SCALE (Coccus hesperidum) - CALIFORNIA - Heavy on leaves and stems of ivy nursery stock in Spring Valley, San Diego County. (Cal. Coop. Rpt.).

A MINING SCALE (Pseudaonidia clavigera) - FLORIDA - Severe on Camellia sasanqua in nursery at Tampa, Hillsborough County, March 20. Plants fumigated with methyl bromide March 3 and still under quarantine. (Hale).

AN ARMORED SCALE (Gymnaspis aechmeae) - FLORIDA - Moderate on 50 Vriesea sp. (a bromeliad) at Ft. Lauderdale, Broward County. (Dowling, McLean; Mar. 10).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - ALABAMA - Pupae numerous in leaves of Ilex spp. damaged in fall of 1963 in Lee and Tuscaloosa Counties. (Grandberry, Cain, Shuler, et al.).

SOUTHERN RED MITE (Oligonychus ilicis) - FLORIDA - Moderate on 1,000 Viburnum odoratissimum at a nursery in Mcclenny, Baker County. (Collins, Mar. 4).

SPIDER MITES - FLORIDA - Tetranychus marianae severe on nightshade at Ft. Lauderdale, Broward County. (Dowling, McLean; Mar. 10). ALABAMA - Isolated, heavy infestations of adults, immatures and eggs of Tetranychus spp. noted on azaleas in Houston and Lee Counties. (McQueen).

AN ACARID MITE (Tyrophagus longior) - CALIFORNIA - Nymphs and adults light on azalea in Danville, Contra Costa County. (Cal. Coop. Rpt.).

AN ERIOPHYID MITE (Calacarus adornatus) - FLORIDA - Infesting 20 percent of 2,000 plants of Nephytis sp. at Hobe Sound, Martin County. (Campbell, Mar. 11).

HOUSEHOLD AND STRUCTURAL INSECTS

CLOVER MITE (Bryobia praetiosa) - CALIFORNIA - Heavy in building in Paso Robles, San Luis Obispo County, and several residences in Sacramento area, Sacramento County. (Cal. Coop. Rpt.). NEVADA - Complaints by homeowners continue in Reno-Sparks area, Washoe County. (Coop. Rpt.). ARIZONA - Infesting lawns and homes in many areas of Maricopa and Pinal Counties. (Ariz. Coop. Sur.). ALABAMA - Probably this species became quite a nuisance in home in Marshall County. (Ledbetter). NORTH CAROLINA - Collected in Warren County. (Reams, Mount). DELAWARE - Continues troublesome in many homes in New Castle County. Reports considerably more numerous this season than in previous years. (MacCreary).

A CLOVER MITE (Petrobia apicalis) - FLORIDA - Found by the millions on its host, white clover, and congregating on walls and inside of homes. Causing complaints at Jacksonville, Duval County. (Josey, Barrett; Mar. 19).

BOXELDER BUG (Leptocoris trivittatus) - NEW JERSEY - Continues to cause concern to homeowners in central and northern counties. (Ins.-Dis. Newsltr.). NORTH CAROLINA - Noted in home in Northampton County. (Taylor, Robertson).

INDIAN-MEAL MOTH (Plodia interpunctella) - OKLAHOMA - Continues to cause concern in some homes in Stillwater area, Payne County. (Okla. Coop. Sur.). DELAWARE - Heavy in home in New Castle County. (MacCreary).

CLUSTER FLY (Pollenia rudis) - COLORADO - Adults numerous in warm south exposures, on lawns and houses at Fort Collins, Larimer County. (Thatcher).

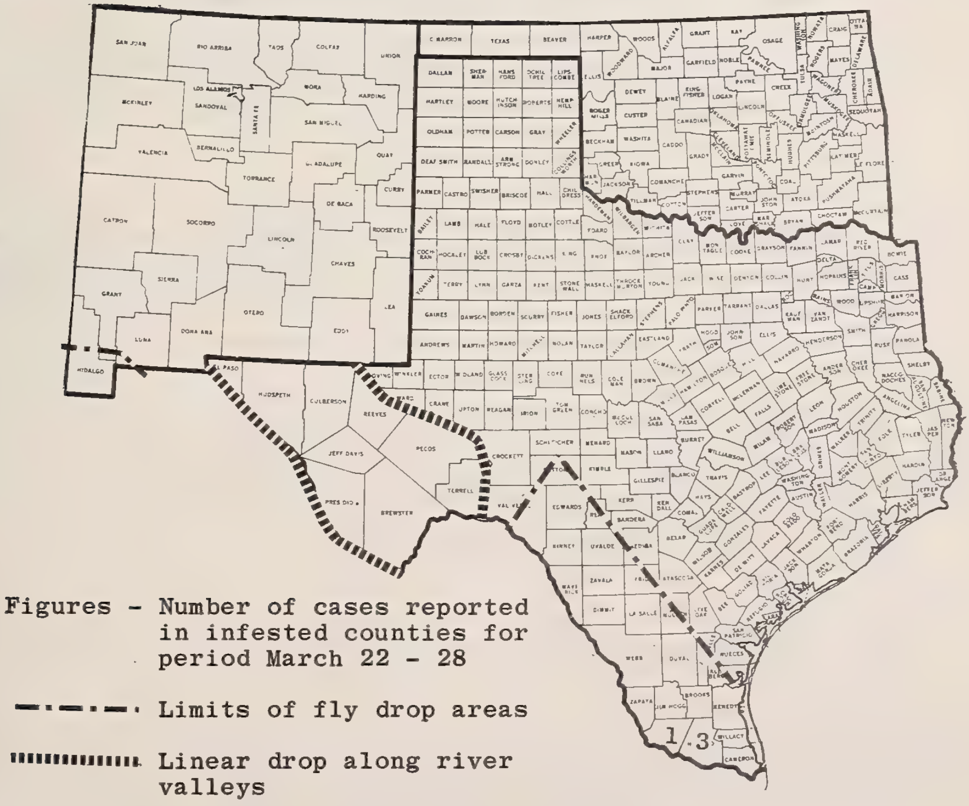
BEAN WEEVIL (Acanthoscelides obtectus) - NEVADA - Medium in home pantry at Las Vegas, Clark County. (Case).

SUBTERRANEAN TERMITES - NEW JERSEY - Swarms reported in several counties. (Ins.-Dis. Newsltr., Mar. 24). DELAWARE - Several swarms of Reticulitermes flavipes noted in areas of New Castle County during past 2 weeks. (Burbutis). NORTH CAROLINA - R. flavipes swarmed from edge of concrete slab driveway in Raleigh, Wake County, morning of March 27. (Mount). OKLAHOMA - First swarming of Reticulitermes tibialis noted in Payne County. (Okla. Coop. Sur.). NEW MEXICO - Unspecified species causing considerable damage to number of homes in Roswell, Chaves County. (N.M. Coop. Rpt.). UTAH - Unspecified species damaged books in library at Logan, Cache County. (Knowlton). CALIFORNIA - Reticulitermes hesperus heavy in a dwelling in Oroville, Butte County. R. tibialis heavy in picture frame and window casing in Eureka, Humboldt County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During the period March 21 - 28, a total of 4 laboratory confirmed cases of screw-worm was disclosed in TEXAS; 3 from Hidalgo County and 1 from Starr County. This brings the total to 7 confirmed cases from Texas this year. During the same 3 months of 1963, the total was 182 confirmed cases. A total 204 nonscrew-worm cases was reported from the Southwest during this same period, as opposed to 224 for the corresponding period in 1963. A total of 100,657,050 sterile screw-worm flies was released during the period March 21 - 28. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period March 22 - 28

—·—·— Limits of fly drop areas

IIIIIIIIIIII Linear drop along river valleys

MOSQUITOES - NORTH CAROLINA - Aedes vexans present in very light numbers in Carteret County during week ending March 22. (Ashton). DELAWARE - Aedes canadensis, A. excrucians, A. grossbecki and A. thibaulti found breeding in areas of western New Castle County on March 24. (Lake, Stahecki). FLORIDA - Aedes canadensis, A. infirmatus and A. sticticus taken biting humans at Gainesville, Alachua County. Larval and pupal stages of Culex salinarius in ditchwater with algal scum at Gainesville, Alachua County. (Mead, Habeck).

NORTHERN CATTLE GRUB (Hypoderma bovis) - DELAWARE - Infestations of nearly grown grubs ranged 1-20 per head on feedlot beeves in Sussex County; most animals imported from Southeastern States. (Catts).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Adults active in Payne (north central) and Pushmataha, McCurtain and Latimer Counties (southeast). (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Averaged 2 per head in Payne County (north central) before onset of cold weather. Occasional adult noted in Pushmataha and McCurtain Counties (southeast). (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - COLORADO - Adults overwintering in numbers of barns at Central Great Plains Field Station, Akron, Washington County. Det. by L. E. Jenkins. (Hays). First ARS record for county.

HOUSE FLY (Musca domestica) - ARKANSAS - Small numbers active on warm days in northwest area. (Ark. Ins. Sur.).

BLOW FLIES - COLORADO - Adults overwintering in numbers in barns at Central Great Plains Field Station, Akron, Washington County. (Hays, Jenkins).

CATTLE LICE - UTAH - Causing some cattle to rub in Cache County. (Knowlton). OKLAHOMA - Counts remain static in north central areas, declining somewhat in southeast areas. (Okla. Coop. Sur.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Ranged 4-5 per head on cattle in southeast counties. (Okla. Coop. Sur.).

BENEFICIAL INSECTS

LADY BEETLES - ALABAMA - Adalia bipunctata ranged 10-20 with a few larvae per spirea shrub; feeding on aphids in Lee County. Lesser number of Hippodamia convergens and Chilocorus stigma observed. (Barwood, Helms, et al.). ARKANSAS - Various species becoming active on warmer days. (Ark. Ins. Sur.). ARIZONA - Larvae of several species found in alfalfa in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

DAMSEL BUGS (Nabis spp.) - ARIZONA - Heavy populations found on sand verbena in Yuma County. (Ariz. Coop. Sur.).

A BIG-EYED BUG (Geocoris punctipes) - ARKANSAS - Becoming more numerous on warm days. (Ark. Ins. Sur.).

MISCELLANEOUS INSECTS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - FLORIDA - Adult collected on ground at Gainesville, Alachua County; coll. and det. by L. A. Hetrick. (Fla. Coop. Sur.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - Larval inspections in St. Charles Parish, LOUISIANA, show small extension to known infested area. Treatment completed in Booneville, Prentiss County, MISSISSIPPI. (PPC, South. Reg., Feb. Rpt.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - Approximately 18,000 acres inspected in San Antonio, TEXAS; very few mounds found. Surveys in Walker and San Jacinto Counties negative. Found for the first time in Nacogdoches County. At Houston, Harris County, 8 small city parks treated. Check of treated area in Colorado County showed all mounds affected by bait. Extensions of infested area found in Ashley and Union Counties, ARKANSAS. Surveys in 12 LOUISIANA parishes revealed large areas of infestation in some parishes. Very good results obtained with broadcast treatment on dairy pastures in Smith County, MISSISSIPPI; indivdual mound treatment not so effective. Found for the first time in Humphreys County. Last known infestation in Fayette County, ALABAMA, treated. Found for the first time in Coweta County, GEORGIA. (PPC, South. Reg., Feb. Rpt.).

A PYRAUSTID MOTH (Macrobotys thestealis) - DELAWARE - Adults collected July 1, 1963, at light by D. F. Bray at Newark, New Castle County; this is a new State record. Det. by R. W. Hodges. (Burbutis).

A PYRALID MOTH (Herculia intermedialis) - DELAWARE - Adults collected July 12, 1963, at light by D. F. Bray; this is a new State record. Det. by R. W. Hodges. (Burbutis).

A CHRYSAUGID MOTH (Arta statalis) - DELAWARE - Adults collected July 12, 1963, at light by D. F. Bray at Newark, New Castle County; this is a new State record. Det. by R. W. Hodges. (Burbutis).

A MOMPHID MOTH (Mompha eloisella) - DELAWARE - Adults collected July 1, 1963, at light by D. F. Bray at Newark, New Castle County; this is a new State record. Det. by R. W. Hodges. (Burbutis).

AN OLETHREUTID MOTH (Eucosma dorisignatana) - DELAWARE - Adults collected September 19, 1963, at light by D. F. Bray at Newark, New Castle County; this is a new State record. Det. by D. R. Davis. (Burbutis).

A TINEID MOTH (Xylesthia pruniramiella) - DELAWARE - Adults collected July 12, 1963, at light by D. F. Bray at Newark, New Castle County; this is a new State record. Det. by D. R. Davis. (Burbutis).

CORRECTIONS

CEIR 14(12): 214 - A PSYCHID MITE (Apterona crenulella) should read a PSYCHID MOTH (Apterona crenulella).

ADDITIONAL NOTES

GEORGIA - CABBAGE APHID (Brevicoryne brassicae) moderate to heavy on cabbage in Colquitt, Brooks and Thomas Counties. (Johnson). VEGETABLE WEEVIL (Listroderes costirostris obliquus) larvae completely defoliated turnips in home garden in Spalding County (Dupree, Mar. 14). This species ranged light to moderate on tobacco in the plant bed in several southern counties. (Johnson, Mar. 25).

MICHIGAN - Numerous reports from homeowners indicate adults of SPRING CANKERWORM (Paleacrita vernata) continue active in southern counties. (Hoffman).

LIGHT TRAP COLLECTIONS

	Temperature° F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
FLORIDA																								
Gainesville 3/26			BL						8												1			
GEORGIA																								
Tifton 3/19-25			BL							0	0								0	0				
MISSISSIPPI																								
Stoneville 3/21-27	29-75	0.42"	MV														4				1			
Stoneville 3/21-27	29-75	0.42"	BL	1													3	1			2			
SOUTH CAROLINA																								
Clemson 3/21-27																		5						
Charleston 3/16-22	36-72	0.13"	BL	0			0		1	0	0	0					3	0	0	0	10		0	
TEXAS																								
Waco 3/21-27			BL				0		1		0	0					25	0			27	0	0	
Brownsville 3/12-25			6 BL	268			106		1319	5	496	357		8368			435	39	51	17	716		148	

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

HAWAIIAN INSECT NOTES

The following notes on Hawaii insect conditions were presented at the 698th meeting of the Hawaiian Entomological Society held February 10, 1964.

Two mature females of an ARMORED SCALE (*Aspidiotus herculeanus* (Ckll. and Hadden)) were collected by Dr. C. W. Rutschky from a twig bearing a mature green macadamia nut. They were found December 13, 1963, in a commercially producing orchard at Honokaa, Hawaii, at an elevation of 900 feet. Determined by Dr. J. W. Beardsley, Jr., as *Clavaspis herculeana*. This report constitutes a first locality record of this armored scale in the Islands. Presence of the species in the State was first reported by E. Shiroma at the January 13, 1963, meeting of the Society. It had been intercepted May 18, 1963, by R. Wakamiya on the bark of an outgoing shipment of plumeria, the source locality of which was unknown. (Hawaiian Ent. Soc.).

Several specimens of BLACK THREAD SCALE (*Ischnaspis longirostris* (Signoret)) were intercepted on coffee berries on 2 occasions by Inspectors A. Paterson and R. Townsend on December 29, 1963, and January 14, 1964, respectively. Concerning the January 14 interception, the passenger revealed that berries were picked on the island of Maui. This constitutes a new host record for this species in Hawaii and also a new island record for Maui, since it has previously been reported as occurring only on the islands of Oahu, Molokai and Niihau. Other previously reported hosts included coconut, *Ficus bengalensis*, mango, *Moraea bicolor*, palm, *Pandanus* sp., star jasmine and *Chrysolidocarpus lutescens*. (E. Shiroma).

An unusually heavy infestation of BANDED GREENHOUSE THRIPS (*Hercinothrips femora* (Reuter)) was noticed on spider-lily plants (*Hymenocallis littoralis*) at the Honolulu International Airport. The immediate signs are bronzing and reddening of the younger leaves and later dying. The infestation is so heavy that several plants have already been killed. (E. Shiroma).

CUBAN-LAUREL THRIPS (*Gynaikothrips ficorum* (Marchal)) - Inspector N. Kitazaki reported during the latter part of January 1964 that young leaves of a banyan tree (*Ficus retusa*) at the Honolulu International Airport showed signs of insect injury, with terminal leaves turning color. Examination of a few leaves showed them to be heavily infested with this thrips, which was identified by K. Sakimura of the Pineapple Research Institute as *Gynaikothrips* sp., most likely *ficorum* (Marchal). Other trees, apparently infested with this same thrips in the Kalihi area, have also been noticed. This constitutes a new insect record for the State of Hawaii. According to Mr. Sakimura, the distribution of this thrips is practically worldwide and is host specific to *Ficus retusa*. Infested *F. retusa* specimens were exhibited. (E. Shiroma).

MEADOW SPITTLEBUG (*Philaenus spumarius* (L.)) was reported heavy on approximately one-half acre of Hamakua pamakani plants (*Eupatorium riparium*) at Honomalino, South Kona, Hawaii, in September 1963 by A. Kawasaki and S. Kawahara of the State Department of Agriculture. Counts ranged 10-20 per plant and the spittle produced by the nymphs was quite conspicuous. Nymphs appeared to be feeding principally on the young shoots, causing a noticeable wilting. A moderate infestation was observed on Hamakua pamakani just beyond Kulani Prison, Hawaii, in the vicinity of the plum orchard in November 1963. (N. L. H. Krauss).

A twig-boring BARK BEETLE (*Xylosandrus compactus* (Eichhoff) (=*Xyleborus morstatti* Hagedorn))* was found in a live branch of Isabella grape on Puna Street, Kamehameha Heights, Honolulu, in December 1963. A number of bostrichids (*Xylopsocus castanoptera* (Fairmaire)) were also found in the branches. (N. L. H. Krauss).

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* Murayama, J. J., and Kalshoven, L. G. E. 1962. Ent. Ber. (Amsterdam) 22(12):247-250.

SOUTHERN GREEN STINK BUG (Nezara viridula var. smaragdula (F.)) adults and nymphs were found in great numbers on buds and flowers of nightblooming cereus (Hylocereus undatus) in Manoa Valley, Honolulu, early in the summer of 1963 by Miss Beatric Krauss. Many of the flowers were ruined. (N. L. H. Krauss).

An ANTHOMYZID FLY (Mumetopia nigrimana (Coq.)) - A large series of this fly was collected sweeping grass beneath datura bushes at Kamuela, Hawaii, during June 1963. One specimen was collected sweeping vegetation at Pupukea, Oahu, in August 1963 (D. E. Hardy), and one specimen collected at a light in Honolulu, Oahu, in February 1964 (W. C. Mitchell). This is a new record for Hawaii. The species is common in the Neotropical region. (D. E. Hardy).

A MOSQUITO (Aedes vexans nocturnus (Theobald)) is present on the island of Molokai. Numerous larvae and pupae were taken by dipping in a grassy pool in a roadside park near the Kapuiwa coconut grove, not far from Kaunakakai, on December 16, 1963. The following day, 11 pupae were taken from old tires near Kaunakakai harbor. Although this is not a normal habitat for this mosquito, the finding indicates that it is possible for the species to be transported from one location to another in dry egg state in old tires. Four pupae of A. vexans nocturnus were also taken from a concrete lined swamp pit about one mile east of Kaunakakai, where great numbers of Aedes aegypti and Aedes albopictus were also present. Aedes vexans nocturnus is now present on the three islands of Oahu, Kauai and Molokai, and appears to be well established. (C. R. Joyce).

A SARCOPHAGID FLY (Sarcophagula occidua (F.)) was taken in large numbers in fly traps at Kaunakakai on the island of Molokai, at Kahalui on the island of Maui, and at Nawiliwili on the island of Kauai, indicating that the species is well established on these islands. S. occidua was first taken on Oahu in September 1961. It apparently has not been previously recorded from the other islands mentioned. (C. R. Joyce).

INTERCEPTIONS OF SPECIAL INTEREST AT U.S. PORTS OF ENTRY

Some important interceptions that were reported by the Plant Quarantine Division, ARS, USDA, on January 31, 1964, follow. These reports are based on identifications received from Federal taxonomists at the U.S. National Museum during the month, and include any of special interest from recent months that were not previously reported.

SAFFLOWER FRUIT FLY (Acanthiophilus eluta (Meigen)), or probably that species, mining in thistle stem contaminating general cargo at Wilmington, North Carolina.

A GIANT AFRICAN SNAIL (Achatina fulica Bowd.) twice at Honolulu Hawaii, in air cargo.

MEXICAN FRUIT FLY (Anastrepha ludens (Loew)) 103 times: In Texas at Dallas (2), Brownsville (7), Del Rio (4), Eagle Pass (12), El Paso (8), Galveston (1), Houston (9), Laredo (23), Roma (6); in California at Calexico (7) and San Ysidro (7); in Arizona at Nogales (6) and San Luis (2); in Florida at Miami (3) and Tampa (3); and once each at Baltimore, Maryland; Philadelphia, Pennsylvania; and New Orleans, Louisiana.

BRUCHIDS - Bruchus ervi Froel. in cargo shipment of lentils at Boston, Massachusetts, and in baggage at New York, New York; B. signaticornis Gyll. in air baggage of lentils at New York; and B. tristiculus Fahr. in ship baggage of sweet pea seed at New York.

LEEK MOTH (*Acrolepia assectella* (Zell.)) twice in stores; at Charleston, South Carolina, and Philadelphia, Pennsylvania.

MEDITERRANEAN FRUIT FLY (*Ceratitis capitata* (Wied.)) 53 times in baggage, mail and stores: At Baltimore (1), Maryland; Boston (6), Massachusetts; Chicago (3), Illinois; Dover (2), Delaware; Honolulu (5), Hawaii; New York (33), New York; San Antonio (1), Texas; San Juan (1), Puerto Rico; and Tampa (1), Florida.

ASIATIC RICE BORER (*Chilo suppressalis* (Wlk.)) once in stores at San Diego, California, and once in baggage at Seattle, Washington.

A WIREWORM (*Conoderus rufangulus* (Gyll.)) once in baggage at Wilmington, North Carolina

FALSE CODLING MOTH (*Cryptophlebia leucotreta* Meyr.) in stores of orange fruit at New York, New York.

MELON FLY (*Dacus cucurbitae* Coq.) in stores at Seattle, Washington.

ORIENTAL FRUIT FLY (*Dacus dorsalis* Hend.) 25 times in baggage, mail and stores: In Hawaii (23) in baggage, mail and stores destined for the mainland; at Portland, Oregon, in baggage and Seattle, Washington, in quarters once each.

OLIVE FRUIT FLY (*Dacus oleae* (Gmel.)) 24 times in baggage: At New York (18), New York; Boston (4), Massachusetts; and Chicago (2), Illinois.

A GRASSHOPPER (*Patanga japonica* (Bol.)) (widespread species in orient) at Seattle Washington. Specimen kept as pet in ship crew quarters.

A CARROT BORER (*Phalonia zephyrana* (Treit.)) 3 times in stores at Philadelphia, Pennsylvania.

A PIERID BUTTERFLY (*Pieris brassicae* (L.)) on cargo at Baltimore, Maryland.

EUROPEAN CHERRY FRUIT FLY (*Rhagoletis cerasi* (L.)) in cherry in baggage at Boston, Massachusetts.

A STENOMID MOTH (*Stenoma catenifer* (Walsm.)) 4 times in baggage: At Brownsville (3), Texas; and New Orleans (1), Louisiana.

WHITE GARDEN SNAIL (*Theba pisana* (Müller)) 5 times: At Charleston (2), South Carolina; and New York (3), New York.

KHAPRA BEETLE (*Trogoderma granarium* Everts) 25 times: At Charleston (2), South Carolina; Hawaii (2); Houston (1), Texas; Jacksonville (1), Florida; New York (1), New York; Philadelphia (4), Pennsylvania; Portland (4), Oregon; San Francisco (4), California; Savannah (1), Georgia; and Seattle (5), Washington.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1963

(continued from page 270)

INSECTS AFFECTING MAN AND ANIMALS

Highlights:

MOSQUITOES were, as usual, a major source of annoyance to man and animals in certain sections of the country, whereas drought conditions and other factors held populations down in other areas. Several massive flights of Aedes sollicitans occurred in coastal regions of Louisiana, killing many cattle in two parishes. Mosquitoes troubled residents throughout Texas, but the general infestation was not as severe as in 1962. Annoying numbers were evident in New Mexico and Arizona, and they were the heaviest of the past five years in Nevada, especially in central and northern counties. Populations were generally light in California, but mosquitoes caused considerable concern in Utah, Wyoming and Montana where control difficulties were reported. Mosquitoes were more annoying than usual in Alaska, above normal in North Dakota and bothersome in South Dakota and Nebraska as well as in eastern Colorado, Kansas and Oklahoma. Annoying numbers were also reported from Iowa, Minnesota and Wisconsin in the Midwest; Maine and Vermont in the Northeast; Delaware and Maryland in the Mid-Atlantic States; and locally in North Carolina, Florida and Alabama. Several species of BLACK FLIES were a nusiance during 1963. Annoyance was reported from Nevada, Idaho, Utah, Minnesota, Michigan, Vermont, Maine, Rhode Island and Maryland. FACE FLY did not appear to be as abundant as in 1962 in most areas of its range, but annoying numbers were reported in several States. Several new counties were reported infested in Missouri, North Carolina and South Carolina. HOUSE FLY adults were a serious problem in Arizona and higher than normal in Utah. Populations were annoying to homeowners during the late summer and early fall in Wyoming, Colorado and Nebraska, and the pest was bothersome in certain Eastern areas. HORN FLY and STABLE FLY both continued as major pests of cattle during 1963, with either one or both of the pests being of primary concern. Horn fly appeared to be more of a general problem, however.

SCREW-WORM incidence in the Southwest has been reduced almost 99 percent over years prior to the eradication program. No screw-worm cases were reported east of Texas and Oklahoma in 1963; the first time in almost 30 years that this has occurred. The releasing of sterilized males (up to 140 million a week) over areas of southern and central Texas, southern New Mexico and northern portions of the Republic of Mexico has had the effect of reducing native populations to very low levels. It is hoped that eradication will be the end result of the program.

HORSE FLIES and DEER FLIES were of importance in a number of States, but they were not generally pestiferous. States reporting annoying numbers were Nevada, Wyoming, Oklahoma, Iowa, Wisconsin, Michigan, Rhode Island and Maryland, although other States had troublesome numbers at times. Populations of CATTLE GRUBS appeared to be about normal for the year, with the usual control practices being applied.

Homeowner complaints concerning the BROWN DOG TICK were numerous in a number of States during 1963, and LONE STAR TICK became heavy on livestock in ARKANSAS and Oklahoma. The TROPICAL HORSE TICK control program is believed to have reduced the incidence of equine piroplasmosis in Florida. TROPICAL FOWL MITE was found for the first time in Delaware. The eradication program for SHEEP SCAB MITE has resulted in elimination of this pest from many counties in several States. CATTLE LICE were the number one pest of cattle in Nevada in 1963, and a number of other States reported economic numbers. FLEAS were of concern to homeowners in several States.

MOSQUITOES were, in general, apparently below normal during 1963 in FLORIDA, although there were some "hot spots" in mosquito production around the State during the summer. Populations of Culex nigripalpus, an encephalitis vector, were especially low in the Tampa Bay area in comparison with those found in 1962. There were no confirmed cases of St. Louis encephalitis in the State. Chick-baited traps have reflected a fairly large population of C. nigripalpus in some other areas of Florida, but also without known cases of encephalitis. Various species of mosquitoes continued a major problem to man in ALABAMA. Extremely heavy populations were reported from the gulf coast area, the Tennessee River Valley Authority lake area and parts of the Warrior River area. In Madison County, the floodwater mosquitoes were the most abundant due to heavy consistent rainfall early in the year; Aedes vexans comprised 30 percent of those mosquitoes present and Psorophora confinnis 25 percent. In the coastal parishes of LOUISIANA, several massive flights of Aedes sollicitans occurred. The first plague affected all of the coastal region, killing many cattle in Plaquemines and Cameron Parishes; others were severe but more localized. The last one, invading the central area of New Orleans, broke precedents by lasting through the first half of December. In TEXAS, several species of mosquitoes troubled residents throughout the State. The general infestation was not as severe as in 1962. In Orange and Jefferson Counties, mosquitoes were found reproducing for the first time in the rice fields rather than ditches and canals.

Mosquitoes were very bothersome statewide in NEW MEXICO after summer rains. In Dona Ana County, the main species along streams was Aedes sollicitans, while in the residential areas, it was Culex tarsalis. During August and September, Aedes vexans was very abundant in Bernalillo, McKinley and Valencia Counties, New Mexico. Mosquitoes were also a real nuisance in August and September in the southern half of ARIZONA. Mosquitoes were locally a problem in a few CALIFORNIA locations for short periods, but in general, 1963 was one of the lightest years in several years. Control of mosquitoes in the rice-growing districts was exceptional by use of the mosquito fish, Gambusia affinis.

Mosquito populations in NEVADA were the heaviest in the last five years, especially in the central and northern counties where abundant spring moisture and adequate water for irrigation contributed to the increase. In UTAH, the past year was very serious in that it was difficult to control mosquitoes adequately, even in established control districts. Early flooding of gun clubs during the stormy summer weather added to the mosquito buildups. In Weber County, 35,000 acres were treated by aircraft and 12,000 acres by ground equipment where three peaks of Aedes dorsalis occurred during the season (May, late June and September). Control budgets were often exhausted before the end of the control season in Utah. In Salt Lake County, the mosquito outbreak in 1963 was the worst since the County Mosquito Abatement District was formed. A. dorsalis gave the most trouble, but Culiseta inornata was also extremely numerous. Culex tarsalis appeared to have been at record low levels.

Mosquitoes were the cause of great annoyance to man and animals throughout WYOMING. Controls were applied in many cities and towns throughout the State, with only a moderate degree of success in most areas. In MONTANA, mosquitoes were a problem as usual along the High Line. Abatement work was excellent in certain localities, but the overall picutre was dark. The species giving the most trouble were Aedes vexans, Aedes dorsalis, Aedes nigromaculis, Culex tarsalis, Culiseta inornata, Aedes campestris, Aedes cinereus, Aedes flavescens, Aedes idahoensis, Aedes increpitus, Aedes spencerii, Aedes trivittatus, Anopheles earlei and Culex territans. Some abatement work was done in Great Falls, Missoula, Kalispell and Laurel. Many other localities of Montana suffered from mosquitoes during the spring and early summer, but very little actual coordinated abatement work was attempted.

Several species of mosquitoes were more annoying in ALASKA to the general population than in a number of years due to continued biting activity throughout the whole summer. Normally, the Culiseta start off in the early spring followed by

Aedes, and annoyance ceases in much of the State by early June. This was not the case in 1963 as the interior was not the only part of the State to be bothered by mosquitoes.

Above normal populations of mosquitoes were observed in many areas of NORTH DAKOTA in 1963, especially in the northwest. In the eastern part of the State, the dominant species included *Aedes vexans*, *Aedes dorsalis* and *Culex tarsalis*. The dominant species in the west included *Aedes vexans*, *Aedes nigromaculis* and *Aedes dorsalis*. In SOUTH DAKOTA, humans and animals were once again bothered by various species of mosquitoes throughout the summer and fall. Populations in NEBRASKA built up during the early spring and then dropped off in early summer due to dry conditions. They then built up again in the fall. During the season, 12 light traps were operated in 11 Nebraska counties. Twenty-two species were identified in the 24,352 specimens collected. Approximately 8,000 were males and 16,000 were females. *Aedes vexans* was the dominant species at all stations and made up to 60 percent of the collections. *Culex tarsalis*, comprising 10 percent of the total collections, was the species of second importance at most stations but in greatly reduced numbers compared to former years. Comparatively few *Culiseta inornata* were collected in the early part of the season in Nebraska, but large numbers were taken in the late August and September catches. At Bassett, a large number of *Mansonia perturbans* were taken.

Mosquitoes were numerous and troublesome in the eastern part of COLORADO in September following rain. The incidence of mosquitoes early in the summer was light. In KANSAS, mosquitoes were of considerable nuisance value in spite of the relatively dry summer. *Aedes vexans* was the most abundant, with *Aedes nigromaculis*, *Culex salinarius*, *C. tarsalis*, *Psorophora confinnis* and *P. discolor* being fairly abundant. Several species of mosquitoes caused considerable annoyances around OKLAHOMA, especially after rainy periods throughout the warm periods of the year.

Surveys were made in MISSOURI to determine the extent of mosquito breeding in various areas of the State. In June, a survey of the Wappapello Lake area (southeast) was made to determine the extent of *Anopheles quadrimaculatus* breeding and the area was resurveyed in September. Thirteen larval stations and 14 adult stations were checked. Most of the adult and larval stations inspected showed a significant increase in populations over those found in 1962. Heavy populations of *Culex pipiens* (30 larvae per dip) were found in water standing in boats. In July, a survey was conducted in the Clearwater Lake area (south central) of Missouri. Eight adult stations and 5 larval stations were surveyed. Counts at the adult stations ranged from zero to 18 *A. quadrimaculatus* and zero to 20 culicine larvae per dip. On August 5 and 6, a survey was conducted on Lake Norfort (southwest). Populations were very light in the 8 adult and 6 larval stations checked. In most areas, shorelines were clean and wave action created unfavorable breeding sites. Large numbers of *Culex* spp. were noted in ponds in the Tecumseh area. On August 6 and 7, a survey was conducted on the Bull Shoals Lake area (southwest). Six adult stations and 6 larval stations were checked. Lake shores were clean and wave action prevented breeding in most areas. In the Kissee Mills public use area, large numbers of culicine mosquitoes were noted. In August and September, 26 sites were surveyed in the Lake of the Ozarks area (south central) of Missouri. At the time of this survey, the shoreline was reasonably clean and free of debris associated with mosquito breeding. Property and resort owners reported more mosquitoes than in the past two years when the lake was at full reservoir, but the populations declined when the lake level dropped. In practically all instances when residents complained of vicious biting by mosquitoes, high numbers of larvae were found in old tires and other containers around their homes.

Mosquitoes became abundant and were annoying in several areas of IOWA during the summer. Controls were necessary in some instances. In MINNESOTA, the first hatch of eggs was reported March 24. First pupation of spring *Aedes* was found on April 25. A large hatch of *Aedes* occurred following heavy rain during May 10-12. These emerged the first week of June and caused consierable nuisance outside the Metropolitan Mosquito Control District. Control within the district was good and little nuisance resulted. By mid-June, Aedes vexans was predominant in all collections, although numerous Culiseta inornata and Culex restuans were being taken. Additional heavy rains in mid-June in Minnesota resulted in an extensive hatch. The rising St. Croix and Mississippi Rivers inundated low-lying areas and formed many backwater pools. These pools produced almost continuous hatch as the pools developed. Mansonia perturbans, a very vicious biter, appeared in light trap collections about June 15 and continued troublesome well into August, especially in areas near cattail swamps. Trap collections of adult mosquitoes declined from a high of 58,000 per 16 traps for the period June 23-29 to a low of 3,500 for the period of July 13-20. Anopheles walkeri was taken in rather large numbers in one trap during the week ending July 13. Flooding along the Minnesota River in late July caused a peak adult population by August 7 throughout much of the district. These numbers declined rather rapidly during August. By late summer, all types of collections were very predominantly Aedes vexans in Minnesota -- in many cases 90-95 percent of collections were of this species.

Larvae of mosquitoes, primarily Aedes vexans, appeared in large numbers in the Dane County, WISCONSIN, area during the second week of June. Substantial numbers of adults were evident in succeeding weeks although activity was sporadic and dependent upon evening temperatures and pattern of thunderstorms. Permanent water and woodland species prevailed throughout the summer in Wisconsin, although populations were lower than in previous years and were considerably lower in the fall. Larvae of Culex pipiens became abundant in mid-August, but emerging adults were not overly troublesome. In MICHIGAN, adults of Culex, Aedes and Anopheles were normally abundant in May and early June, but numbers were abnormally low for the remainder of the season. The following mosquitoes were trapped in Lucas County, OHIO, northwest area, during the period June 4 through September 13. Culex pipiens - 710, C. restuans - 29, C. salinarius - 35, C. tarsalis - 2, C. territans - 14, C. erraticus - 1, Aedes vexans - 195, A. excrucians - 2, A. stimulans - 2, A. spencerii - 1, Culiseta inornata - 2, Culiseta morsitans - 1, Uranotaenia sapphirina - 15, Anopheles punctipennis - 10 and Anopheles quadrimaculatus - 8. A total of 3,169 mosquitoes consisting of 2,131 males and 1,038 females was trapped over the year. Lower total populations and fewer personal complaints were encountered during 1963 in Ohio than in previous years.

Extremely heavy populations of mosquitoes (predominantly snowpool Aedes spp.) were prevalent throughout MAINE in late spring and early summer. Abundant snow fall resulted in above normal amounts of standing water allowing complete hatch and development of mosquitoes. The annoyance level remained very high into the late summer. Mosquitoes, Culex spp. and Aedes spp., were annoying to livestock on pasture and to humans in VERMONT most of the summer. In the fall, adults were seen in homes seeking winter protection. Aedes spp. were heavy locally in woodland areas of RHODE ISLAND in the spring and some complaints of crepuscular biting were reported during the warm period of June, but in general, mosquitoes were less conspicuous than usual throughout the season. There was also some annoyance reported in CONNECTICUT during midsummer. In DELAWARE, comparison of mosquito light trap collections from similar localities in the State during 1962 and 1963 indicated that Aedes sollicitans and Aedes cantator were somewhat more troublesome in 1963. Culex spp. and Aedes vexans counts were less than two-thirds of the amount collected in 1962. The troublesome late fall brood of A. sollicitans experienced in New Castle County, Delaware, in 1962 did not repeat in 1963. Numbers of Aedes sollicitans in tidewater areas of MARYLAND were generally below normal except for distinct outbreaks in June and again in late September and October. Outbreak numbers of Aedes spp. and Culex spp. also occurred in several communities in Prince Georges County, Maryland. In VIRGINIA, only occasional reports were received concerning mosquitoes. Aedes sollicitans populations were unusually low throughout the summer along the coastal areas of NORTH CAROLINA and it did not increase greatly until around September 16. Culex pipiens quinquefasciatus became quite troublesome to residents in the mountain counties of North Carolina during the late summer.

Adults of a PHANTOM MIDGE (Chaoborus punctipennis) were very annoying in the immediate area of waste lagoons at Easton in Talbot County, MARYLAND, at certain periods during the summer. Populations of one of the BITING MIDGES (Culicoides obsoletus) were very abundant and annoying in eastern Kent County, DELAWARE, during early June. In WISCONSIN, emergence of a LAKE MIDGE (Tendipes plumosus) began on the night of May 8, and reports indicated the highest incidence in many years in the vicinity of Lake Winnebago. The second emergence of this midge occurred during the third week of July and was also high.

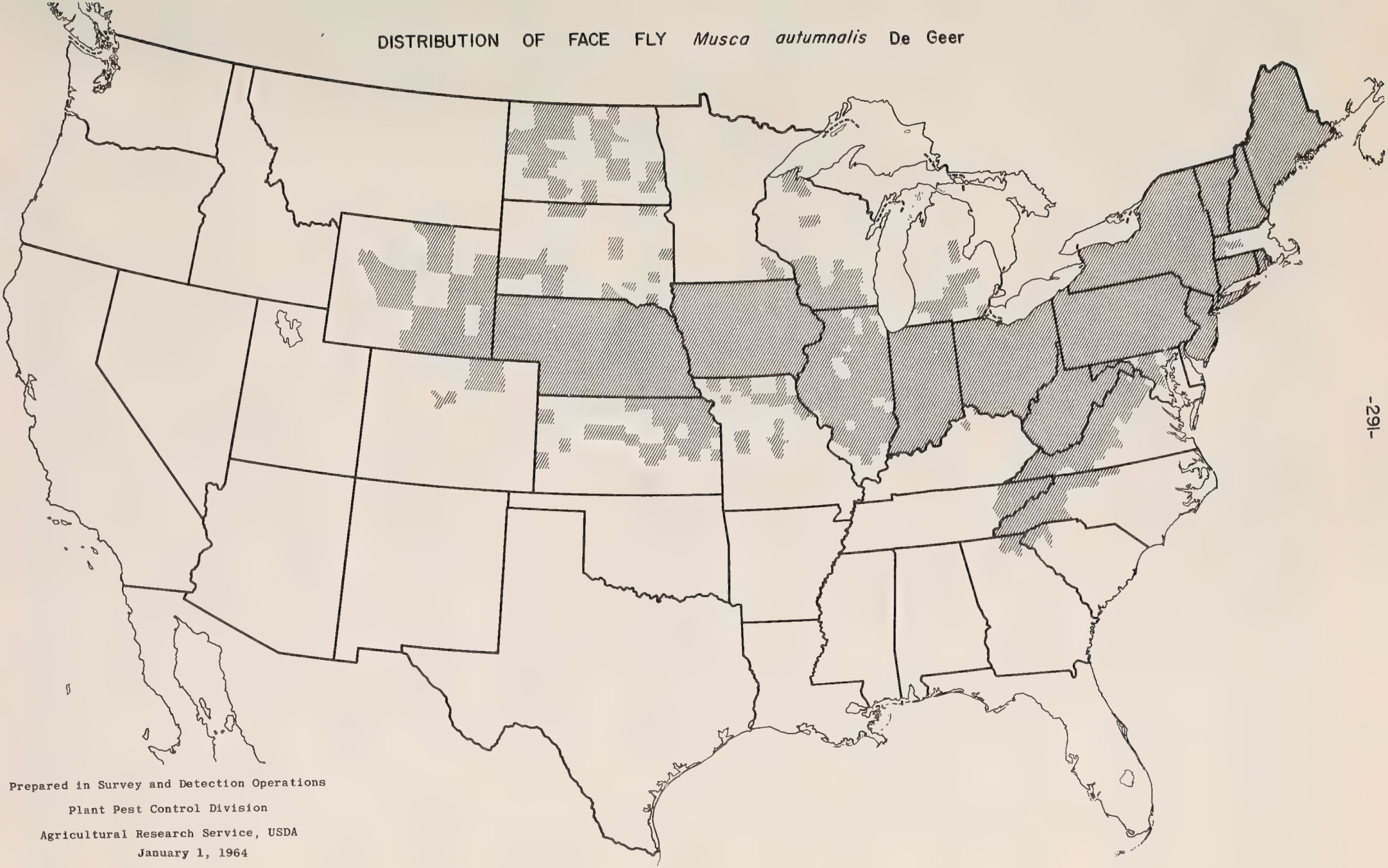
BLACK FLIES were the heaviest in recent years in the northern two-thirds of NEVADA in 1963, especially along water sheds such as the Humboldt River where the annoyance to humans and livestock was severe. Annoyance was also reported in IDAHO and UTAH. Various species were reported active during late May and early June in MINNESOTA, and Simulium spp. caused annoyance during May and early June in northern Lower Peninsula and Upper Peninsula of MICHIGAN. Various species were numerous during the spring in VERMONT. Populations of Simulium spp. appeared to be somewhat above normal in MAINE, although not to the degree mentioned previously for mosquitoes. Decreases began in mid-July. In RHODE ISLAND, black flies were biting viciously in rural areas in late April to early June. Simulium sp. was reported biting a horse in Kingston on October 20. Simulium spp. caused considerable annoyance during most of the summer to residents in central areas of MARYLAND.

GNATS in general were troublesome in many CALIFORNIA locations around residences and they were annoying to animals. EYE GNATS (Hippelates spp.) became noticeable during mid-July in the sandhills area of NORTH CAROLINA and they were troublesome up until about the first of October. However, populations were reported to be less than 1962 in this area. Eye gnats were troublesome in other areas of the Coastal Plain of North Carolina as well, and occasional reports were received in VIRGINIA.

FACE FLY (Musca autumnalis) caused considerable discomfort to cattle in western and southeastern NORTH DAKOTA. Overall, populations decreased from previous years in SOUTH DAKOTA. Spring populations were low for several weeks, with an abrupt increase during the last week of July. Populations began to decrease in South Dakota around the middle of August and ceased to cause concern for the rest of the season. High populations failed to materialize during 1963 in WYOMING. Only a few flies were found in Albany and Goshen Counties. Populations were much lower than those of 1962. Face fly populations were light to heavy in NEBRASKA, with some areas reporting a lot of trouble with sore eyes in cattle. Overwintering sites were reported from homes, schools, churches and hotels. Face fly caused no complaints during 1963 in KANSAS. No new counties were found infested. Face fly females were observed depositing eggs in abnormally cool weather (65° F.) during late May in MISSOURI. Populations averaged from less than one to 9.8 flies per animal in the central, north central, northwest and northeast areas throughout the season. Surveys were made in counties south of the Missouri River and face fly was positively identified from the following counties for the first time: Cole, Henry, Johnson, Moniteau and Miller. Counties checked with negative results were Bates, Franklin, Gasconade, Jefferson, Morgan, Osage and St. Clair. Face fly began building up rapidly in southern and central IOWA counties in mid-June; counts ranged 8-10 per animal. They continued pestiferous until fall. There were some reports of face fly in MINNESOTA, but no records of serious infestations. Face fly activity commenced in WISCONSIN in early May and increased most rapidly in southern and central counties. Populations appeared to be more pronounced in a few counties than in others. Problems were being reported from Bayfield County in mid-June, this being the principal area in northern Wisconsin to be troubled by face fly to any extent. In general, the fly was less troublesome than in 1962 in the State.

Face fly was first observed on cattle in ILLINOIS on April 16. Populations varied from zero to 3 per face through late April, May and first half of June, with one exception which was 12 per face from one herd in the northwest district

DISTRIBUTION OF FACE FLY *Musca autumnalis* De Geer



Prepared in Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service, USDA
January 1, 1964

on June 4. Populations increased slowly through late June, July and first half of August in the west, west-southwest and central districts of Illinois, and they reached their peak August 16-20 when district averages reached 4.6 per face in the west-southwest, 11.4 in the west and 14.6 in the central district. Populations in the northeast and northwest districts increased more rapidly and averaged 30 per face in the northwest and 20 per face in the northeast district August 12-15. Surveys made in Illinois counties not known to be infested in the southern area did not reveal any infestations, thus indicating for the second year that there has been little or no southern migration of the species. Face fly apparently began its buildup in the central area of INDIANA the first part of July when counts of up to 25 per face were reported. Dry weather apparently affected the buildup in that State. Populations were generally low over OHIO in 1963. Animals were seldom greatly annoyed and control measures were seldom necessary. The low populations were due to adverse weather conditions. Problems in MICHIGAN with face fly were fewer than during other recent years, and no general buildup occurred during the season.

Face fly populations were high in all areas of VERMONT, but they were lower than in the several preceding years in NEW YORK and farmers put little effort into control attempts. Face fly was generally present in RHODE ISLAND. It was abundant in PENNSYLVANIA during the season, but less than in 1962. Population levels in NEW JERSEY were also lower than in 1962. The extensive dry weather that prevailed throughout the summer was believed to have influenced this situation. Populations on cattle in central MARYLAND were about the same as in 1962. On dairy cattle in that State, counts of 10-50 per head were common during August. Control continues to be a difficult problem in Maryland. In VIRGINIA, face fly continued to cause considerable irritation to livestock in those areas where it occurs. Populations in NORTH CAROLINA were reported to be relatively low during the summer in the mountain counties. The heaviest infestation observed during a survey of 10 counties in the latter part of August was 10-15 per animal on a small group of cattle in Haywood County. Determinations of specimens from counties not previously known to be infested were made. The counties were Alleghany, Macon and Wilkes. Counts of 10-12 per animal were noted on a herd in Clay County during the third week of June. Face fly was a pest in several homes in the extreme eastern part of TENNESSEE. It was more abundant than usual in SOUTH CAROLINA, but no further spread was noted. Face fly was first observed on beef cattle on May 16 in GEORGIA. Infestations ranged from zero to 10 per animal, averaging 5 per animal. They increased to 30 per animal by mid-June. Infestations have been found in Union, Towns, Rabun, White, Habersham and Stephens Counties, Georgia.

HOUSE FLY (Musca domestica) adults were a serious problem to homeowners and ranchers throuthout ARIZONA during 1963. Controls were necessary in dairy herds to prevent fly populations from developing into damaging numbers. House fly was generally low most of the year in CALIFORNIA, with a sudden upsurge in populations late in the summer. Numbers in UTAH were higher than normal. Homeowners in WYOMING were bothered by extremely large movements of house fly adults into homes and other buildings in September and October. In general, populations were higher in 1963 than in 1962. House fly was particularly numerous in COLORADO following the rain in August. Activity in OKLAHOMA started in late April, but remained low until peak populations were reached in July. Counts decreased somewhat in August and reached a second peak in September. Activity continued in sheltered areas of Oklahoma until mid-December. The principal concern with this species in ARKANSAS is in dairy barns. Normal numbers were present in KANSAS. Heavy populations of adults were very active and annoying in both city and rural areas of NEBRASKA in late September. House fly was generally present in NORTH DAKOTA, but except for scattered instances, it did not cause much concern.

House fly numbers were generally low in MICHIGAN, but a few problems were reported in September. Populations were at normal levels in OHIO and remained troublesome well into the fall, and house fly was troublesome most of the summer in VERMONT. Populations in barns were lower in NEW YORK. House fly was slow in developing in PENNSYLVANIA due to a cool season, and later the dry summer kept populations down. Populations were at lower levels also in NEW JERSEY. House fly was troublesome in many areas of NORTH CAROLINA as usual. It was noted to be a real problem in caged layer houses during the summer months. The fly was a nuisance around hog breeder pens in ALABAMA and continued a nuisance to man in that State.

LITTLE HOUSE FLY (*Fannia canicularis*) appears to be more prevalent in NEW JERSEY. If not, it is at least becoming more of a problem because of the increasing number of housing developments in the vicinity of poultry farms. Numerous complaints are received from suburbanites about fly problems in that State, and these complaints generally come from homeowners who have located in the immediate vicinity of poultry farms.

HORN FLY (*Haematobia irritans*) was one of the major pests of cattle in WASHINGTON, with abundance about normal. Populations in NEVADA were medium to heavy statewide and were heavier later in the fall than normal. The pest was normal in number in UTAH and about the same as in 1962 in WYOMING where it caused much annoyance to cattle. Horn fly was generally present in NORTH DAKOTA, but except for scattered instances, did not cause much concern. The population cycle of this species followed that of the face fly very closely in SOUTH DAKOTA. Extreme populations occurred during the middle and last of July in that State and then decreased for the rest of the season. In NEBRASKA, horn fly counts ranged approximately 50-3,000 per animal. Low counts existed prior to mid-August, then increased sharply and reduced to lower levels in early September. It was also most numerous in COLORADO following the rain in August. Horn fly started early in KANSAS and continued pestering cattle until late fall. Activity began in OKLAHOMA in late March, but populations remained light until late April. They increased throughout May and June reaching peak population levels in mid-July. Counts declined, continuing at light to moderate levels until heavy populations again reached a peak in late September. By mid-October, populations declined in Oklahoma, but they remained active until late November. Horn fly was commonly reported in TEXAS and comparable to 1962 populations in ARKANSAS. It was prevalent over TENNESSEE and of concern to beef and dairy cattle producers in ALABAMA.

Horn fly populations in MISSOURI ranged 0-50 per animal during late April. They increased to 10-400+ during May and remained high on untreated herds throughout the season. Horn fly was the most important pest of cattle in Missouri during 1963. Similar conditions existed in IOWA in 1963. It became the most important pest of cattle in May and numbers were sufficiently high to cause extreme annoyance to unprotected animals during the summer. In ILLINOIS, horn fly averaged 5 per animal in the southwest district April 29-May 2. Populations increased rapidly and on July 1-3 populations in southern Illinois were 0-1,000 (average 250) per animal. This was the heaviest population observed in the State in 1963. Populations in northern Illinois varied 0-80 per animal on May 6-9 and increased gradually until August 12-15 when an average of 80 adults per animal was found. In the east, central and west central districts, populations of 0-400 were found during July. The highest averages for the west and central districts were 108 and 79, respectively, August 18-22. Horn fly averaged 35-100 per animal in untreated herds in Tippecanoe County, INDIANA, in early June; and the pest caused annoyance to untreated beef herds in MICHIGAN. Horn fly required control measures in PENNSYLVANIA, but populations were also slightly less abundant than in 1962. It was more prevalent than usual in VERMONT, and was again a serious problem during most of the season on unprotected beef and dairy animals in all sections of MARYLAND. Light to medium infestations occurred in several VIRGINIA counties. Horn fly was first observed on April 4 in GEORGIA. Counts of 15 per animal were recorded on that date. Infestations increased to 500 per animal on May 18, and decreased to 112 per animal by October 2.

STABLE FLY (*Stomoxys calcitrans*) appeared early in WISCONSIN and dominated in most areas as the primary pest of man and animals. It was rather scarce through May and June in ILLINOIS, but increased in July and August. In August, district averages were 12 flies per animal in the northwest, 4.8 in the northeast, 8.3 in the west, 4.8 in the central and 5.3 in the west-southwest. Stable fly also became extremely annoying to unprotected animals in IOWA in July, but it was low throughout MISSOURI. Stable fly became active in mid-April in OKLAHOMA, but counts remained generally low until late May when counts increased to moderate numbers by late June. Infestations fluctuated up and down, but heavy counts were noted in the southeast during October with activity continuing until mid-November. The fly started early in KANSAS and was a pest of cattle until late fall. It was particularly numerous in COLORADO following the rain in August. Stable fly counts in NEBRASKA ranged 5-60 per leg on animals, causing much annoyance to cattle. The fly was generally present in NORTH DAKOTA, but except for scattered instances, it did not cause much concern. Stable fly was about normal for the year in UTAH.

SCREW-WORM (Cochliomyia hominivorax) eradication efforts in the Southwest are based on the sterile fly technique developed by research entomologists. Females that mate with sterilized males lay eggs that do not hatch. If enough sterilized males are systematically released to overwhelm the native flies, the native population quickly declines. If the release of sterilized flies is continued long enough, eradication of the species must result. The Southwest program, a cooperative effort, was started early in the spring of 1961. Each week up to 140 million screw-worm flies are being reared and made sexually sterile in special facilities at a United States Department of Agriculture laboratory constructed on the Moore Air Force Base near Mission, Texas. These are released over areas of southern and central TEXAS, southern NEW MEXICO and northern portions of the Republic of Mexico. A barrier zone of sterile flies has been established and is maintained along the Mexican, Texas, New Mexico border to prevent reinfestation of the eradication area. Livestock producers, county agents, predator-control workers, sportsmen and other volunteer observers are cooperating by promptly reporting screw-worm cases found in domestic and wild animals. Cooperative surveys by USDA and Mexican Department of Agriculture personnel in northern Mexico evaluate the threat of screw-worms migrating through or into the sterile fly barrier zone. Inspection and quarantine activities along the Mexican border have been intensified, and animals found to be infested with the pest are rejected entrance into Texas.

It has been estimated that screw-worm incidence in the Southwest has been reduced almost 99 percent over the pre-program years. By mid-December of 1963, the screw-worm populations appeared to be virtually eliminated in the eradication area. Each year since eradication was achieved in the Southeastern United States, screw-worms have managed to penetrate into the free area. For the first time in more than 30 years, no screw-worm cases were reported east of Texas and Oklahoma during 1963. Screw-worm infestations were above normal for the year in ARIZONA. A decrease was found in the southeastern area of the State, but an increase was noted in the north central area of Arizona.

Larvae of BLACK BLOW FLY (Phormia regina), which occur throughout the winter following dehorning operations in SOUTH CAROLINA, are preventing farmers in the Piedmont area of that State from dehoring when they should. Black blow fly was more abundant than usual in UTAH. BLOW FLIES and FLESH FLIES were troublesome around poultry establishments in ALASKA where manure was allowed to accumulate untreated. HOUSE FLIES and other flies were very bothersome and annoying to homeowners during the fall months in most areas of NEW MEXICO.

HORSE FLIES and DEER FLIES were of minor importance to livestock in ALASKA, but they were annoying to swimmers in the warmer areas of the State, especially on the beaches. Horse and deer flies were more numerous in the central and northern counties of NEVADA than for several years, but numbers were about normal for the year in UTAH. High populations of Tabanus spp. (horse flies) and Chrysops spp. (deer flies) were found bothering livestock in all areas of WYOMING; counts were higher than in 1962. The highest numbers were found in Lincoln, Teton, Fremont, Carbon and Goshen Counties. Several species of deer and horse flies were commonly reported in TEXAS. Activity of Tabanus spp. and Chrysops spp.

was reported in OKLAHOMA from early April until late October, with moderate to heavy numbers present throughout the eastern part of the State. A horse fly (Hybomitra lasiophthalma) was heavy along coastal areas of LOUISIANA in the spring. Tabanus spp. were present in low numbers in KANSAS and infestations were lighter than the preceding year in ARKANSAS. Emergence of Tabanus equalis was noted in early June in the central part of MISSOURI. During June, populations of T. lasiophthalmus, ranging from zero to forty per animal, were observed feeding on the undersides of horses and cattle in the east central part of that State. The highest counts were made on horses. Horse flies were generally low throughout Missouri in 1963. Horse flies and deer flies became fairly abundant in many areas of IOWA during the year. They annoyed cattle, horses and humans. In ILLINOIS, horse flies were scarce in most areas of the State, with only occasional specimens being observed. Exceptions were in southern Illinois where 0-6 (average 1.6) horse flies per animal were observed July 1-3, and one herd in the west-southwest district averaged 4.2 horse flies per animal August 18-22 while none were observed in six other herds in the west-southwest district. Horse and deer flies began appearing the first week of June in WISCONSIN and were quite annoying in certain areas throughout most of the summer. In MICHIGAN, Chrysops spp. became especially annoying in late July in some resort areas of the Lower Peninsula. Chrysops spp. were also especially annoying in rural areas of RHODE ISLAND in July and August. They appeared to occasion more comment than usual in that State. Tabanus spp. and Chrysops spp. were again annoying to man and animals in all tidewater areas of MARYLAND.

COMMON CATTLE GRUB (Hypoderma lineatum) infestations were generally light in GEORGIA, but some herds had a few individual animals with high infestations. Common cattle grub was of concern to beef and dairy producers in ALABAMA, and Hypoderma sp. was present in moderate numbers in TENNESSEE. Unspecified cattle grubs increased in the Columbia area of SOUTH CAROLINA. Common cattle grub and NORTHERN CATTLE GRUB (Hypoderma bovis) were present in approximately equal numbers in backs of some native beef animals examined in Wake County, NORTH CAROLINA, the second week of February. The latter species was the only one present when part of the same animals were examined on March 8. About 5 per animal were found each time on one group of 25 animals. Individual animals with as many as 50 grubs were reported not uncommon in some of the mountain counties. Populations of common cattle grub were about average for the year in NEW YORK.

Common cattle grub was commonly reported in TEXAS and moderate to heavy infestations were present from January through mid-March in OKLAHOMA. Fall activity was first noted in Oklahoma in early December. Control measures for common cattle grub continue to improve in ARKANSAS, resulting in much lower grub counts. Common cattle grub was about normal in number in KANSAS and UTAH, as was northern cattle grub in the latter State. In NEW MEXICO, the majority of ranchers treated for cattle grubs in 1963. Hypoderma spp. populations were at approximately the 1962 level in NEVADA, and infestations averaged medium on cattle in western NORTH DAKOTA in late March and early April. Life cycles occurred at normal times in NEBRASKA, with most "gadding" of cattle noted during late June. Grub counts were light to moderate in Nebraska.

Common cattle grub and northern cattle grub were still among the worst pests of WYOMING cattle during 1963, as was the situation in 1962. Low populations of both species occurred during the winter in Gallatin, Meagher and Sweet Grass County areas of MONTANA, but in Fergus County, same State, common cattle grub was present in greater numbers. The usual population levels of both species of cattle grubs occurred in WASHINGTON, with about 8-10 grubs per head in untreated herds. No cattle grubs were reported in ALASKA. Also in Alaska, a REINDEER WARBLE (Oedemagena tarandi) continued to heavily infest reindeer and caribou throughout the northern areas of the State.

SHEEP KED (Melophagus ovinus) infestations were medium to heavy in several areas of NEVADA and about normal for the year in UTAH. Sheep ked was common throughout WASHINGTON as usual. In NEW YORK, it was present in many flocks, but no unusual outbreaks occurred. Use of the sprinkler can control method for farm flocks has considerably reduced incidence of this pest in New York.

Periodic outbreaks of BROWN DOG TICK (Rhipicephalus sanguineus) occurred in yards, kennels and residences in CALIFORNIA, and infestations continued to increase in Clark and Washoe Counties, NEVADA. Large numbers were a serious problem to homeowners in Yuma, Maricopa, Pima and Pinal Counties, ARIZONA, in 1963. In TEXAS, complaints of infestations around homes were received in many areas of the State as was the situation in OKLAHOMA and KANSAS. Brown dog tick appeared to be more abundant than usual in SOUTH CAROLINA. It was reported from an increasingly large number of locations as a household pest. In all instances, household pets such as dogs were involved. Many homeowners also complained in DELAWARE, PENNSYLVANIA and RHODE ISLAND. The frequency of complaints during the season was negligible in Rhode Island, however, compared to those received during colder months.

AMERICAN DOG TICK (Dermacentor variabilis) was reported several times in VIRGINIA and MARYLAND. The tick is now generally distributed throughout RHODE ISLAND, with complaints beginning in mid-April and decreasing in July. A count of 70 per drag was made in Jamestown, Rhode Island, on May 22. American dog tick was very abundant in eastern areas of NORTH DAKOTA, and it was reported very numerous by May 17 in various parts of MINNESOTA, including the St. Paul-Minneapolis area. The tick continued active in Minnesota through June and later. Very high populations were present in many areas of NEBRASKA in July and August, with both domestic and wild animals being hosts to very large numbers of ticks. In KANSAS, more infestations on humans and dogs were reported in 1963 than normal. American dog tick populations were lower than usual in CALIFORNIA.

WINTER TICK (Dermacentor albipictus) populations were heavy on wildlife and livestock during the fall and winter months in OKLAHOMA, and the species was commonly reported in TEXAS. High populations of the ROCKY MOUNTAIN WOOD TICK (D. andersoni) were present in brush areas along the North Platte River Valley of NEBRASKA in May, and the species was about normal for the year in UTAH. EAR TICK (Otobius megnini) was commonly reported in TEXAS and approximately normal in numbers in UTAH.

TROPICAL HORSE TICK (Dermacentor nitens) was recently proven to be a vector of a devastating disease of horses, equine piroplasmosis. The tick was first found in FLORIDA during the summer of 1961. It was later found in GEORGIA. The disease was first diagnosed in 1961 in an animal stabled at the Miami Police Academy in Florida. Since present diagonostic methods are very expensive and and chemotherapeutic agents are not known that will cure the disease, vector control has been an important part of this disease control program. The disease has been reported principally in three counties in southeast Florida and one premise in southern Georgia. Vector control consists of spraying horses at three-week intervals with an appropriate tickacide and hand treating horses' ears and other sites of predelection with a tickacide in oil. It is believed that reducing the number of tropical horse ticks has been effective in reducing the incidence of equine piroplasmosis in Florida.

TICKS, primarily LONE STAR TICK (Ambylomma americanum), were heavier than normal on untreated herds in heavily wooded areas of ARKANSAS. Populations of lone star tick became active during early March in OKLAHOMA and continued heavy on livestock throughout the eastern half of the State through August. Lone star tick infested a herd of beef animals in Hancock County, GEORGIA (averaged 50 per animal), and the pest was commonly reported from Texas as was GULF COAST TICK (A. maculatum) in the latter State.

NORTHERN FOWL MITE (Ornithonyssus sylviarum) remains the most serious pest of chickens in NEW YORK. Numerous outbreaks occurred and claimed resistance to malathion apparently contributed to poor control. Use of another material, particularly applied by misting equipment, has served to bring many of these infestations under control. On a few farms, northern fowl mite populations were noted to be high even during the summer. Incidences of this mite on poultry and invading residences and business establishments in CALIFORNIA were up again in 1963. It was also numerous in some flocks of poultry in the Matanuska Valley of ALASKA. A heavy infestation of TROPICAL FOWL MITE (O. bursa) occurred in a commercial flock in one area of Sussex County, DELAWARE. This was the first known record of this species in the State.

CHICKEN MITE (Dermanyssus gallinae) was found in some flocks of chickens in the Matanuska Valley of ALASKA, and undetermined species of mites were reported in some areas of that State. Populations of chicken mite and poultry lice were present in NEW YORK, but serious outbreaks were very infrequent.

In CALIFORNIA, the TROPICAL RAT MITE (Ornithonyssus bacoti) was unusually bothersome to homeowners and MUSHROOM MITE (Tyrophagus putrescentiae) is becoming more and more common in household and business establishments. Also, instances of occurrence of an EARTHWORM MITE (Fuscuropoda agitans) have been more frequent and heavier populations occurred during 1963 in California. A possible strain of this mite was found in chicken droppings in San Joaquin County. This particular mite was successfully eliminating house fly (Musca domestica) eggs which resulted in excellent fly control.

Unspecified CHIGGERS were a nuisance in untreated areas of KANSAS and they attacked man and pigs in central and eastern areas of PENNSYLVANIA. In CALIFORNIA, a local, heavy infestation of Euschongastia sp. was found on horses in Tuolumne County.

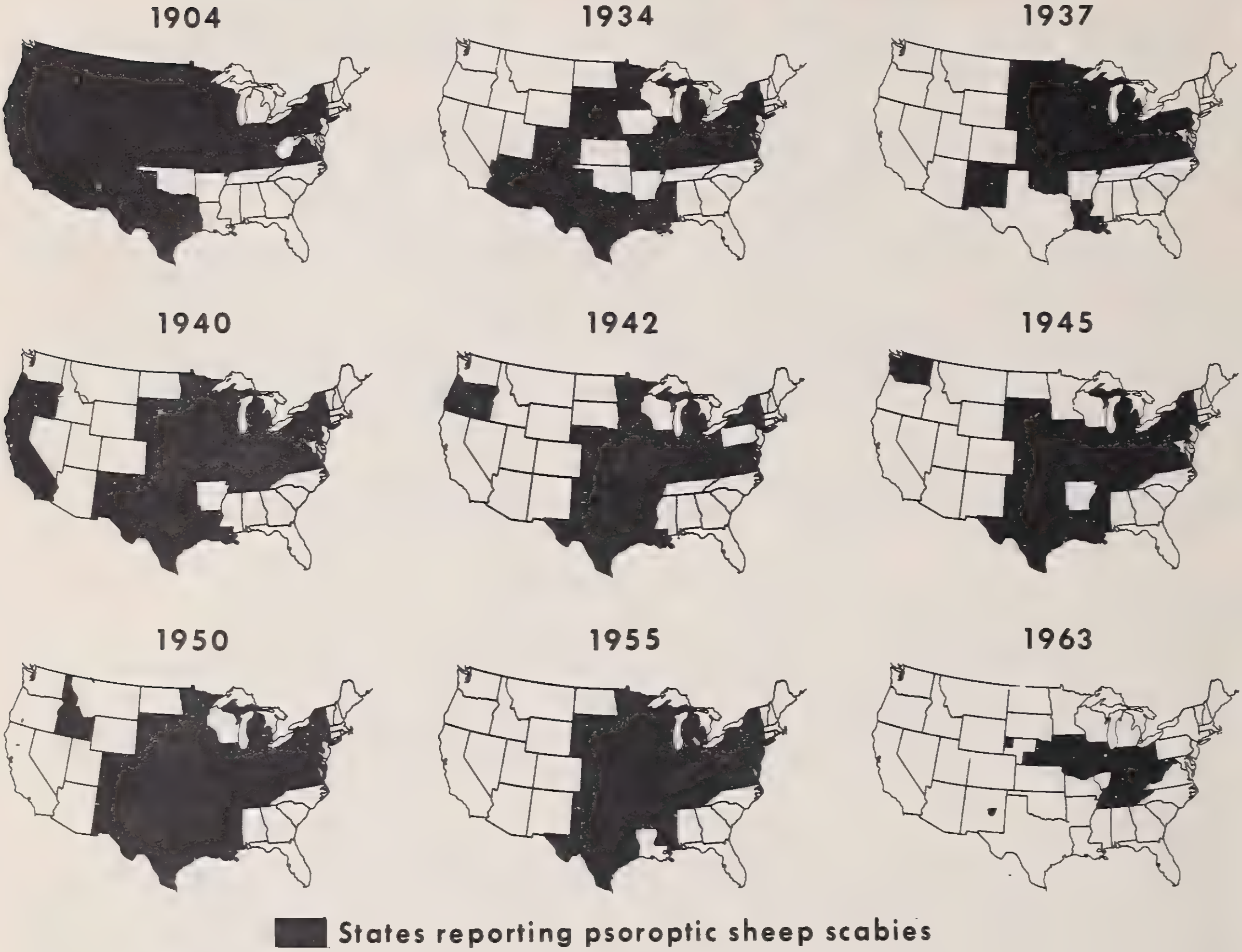
Sarcoptic and psoroptic MANGE MITES were eradicated from farm animals in NEW YORK and no infestations were known at the end of the year.

SHEEP SCAB MITE (Psoroptes ovis)* was reported in 229 flocks of 22,887 sheep in 169 counties in 19 States in the calendar year 1963. The eradication program has resulted in elimination of the pest from many counties in several States. At the end of the year, 2,416 counties were "sheep scabies free", and 424 were actively engaged in eradicating the pest. Only 314 infested counties had not established an eradication program. In August 1960, when the program began, 1,689 counties had not established an eradication program, only 44 infested counties had, and there were 1,421 counties considered free of the pest. In 1963, approximately 15 million sheep were inspected on farms and ranches and 10 million at public stockyards. CATTLE SCAB MITE (Psoroptes sp.) infested two herds of cattle in TEXAS and one in NEW MEXICO during 1962. No psoroptic cattle scabies has been reported since March 1962. Approximately 12 million cattle are being inspected for this mite each year on farms and ranches and 20 million at public stockyards. A new mite parasite of domestic cattle, Psorergates bos, was collected from a Hereford bull in Quay County, NEW MEXICO, in January of 1963.

CATTLE BITING LOUSE (Bovicola bovis) was common on young stock in winter housing in ALASKA, but populations decreased rapidly as weather warmed and cattle were out of doors most of the time. In WASHINGTON, cattle biting louse, SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus) and LONG-NOSED CATTLE LOUSE (Linognathus vituli) were some of the other major pests of cattle and in about normal abuncance. Although many cattle herds throughout WYOMING have been effectively treated, short-nosed cattle louse and Solenopotes capillatus still remain a serious problem. In NORTH DAKOTA, reported infestations of cattle lice were spotty and average numbers were in the medium range. Short-nosed cattle louse was the dominant species in that State. A heavy infestation of cattle biting louse appeared on a large herd in PENNSYLVANIA that had come from out of the State. In GEORGIA, cattle biting louse was light to moderate and Solenopotes capillatus was mostly light, with some moderate infestations. However, long-nosed cattle louse is the most common species found on cattle in Georgia. Infestations were light to heavy, with most being light to moderate.

*· See map top of page 298.

STORY OF SHEEP SCABIES ERADICATION*



CATTLE LICE were reported from a few locations of CALIFORNIA as heavy early in the year, and they remained the number one pest of cattle in NEVADA in 1963. Cattle lice were about normal for the year in UTAH and commonly reported in TEXAS. They were especially bad in some NEW MEXICO cattle herds during the winter and early spring. Majority of ranchers in New Mexico treat for lice as well as for cattle grubs. In OKLAHOMA, moderate to heavy infestations of several species were present throughout the State from January through April when populations declined. The first fall activity was noted in late November in Oklahoma. Light to moderate cattle lice populations existed the first part of the year in NEBRASKA. About one percent of the cattle in MONTANA are affected; these "carriers" should be treated. About half of the "carriers" in Montana are bulls. Cattle lice were annoying in NEW YORK and they caused losses where control measures were not applied.

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* See sheep scab mite, page 297.

HOG LOUSE (Haematopinus suis) infestations ranged from light to heavy on hogs throughout OKLAHOMA from January through March. Fall infestations became active in mid-November, with some heavy populations present. Hog louse populations were normal for the year in UTAH and of concern to swine producers in ALABAMA. This pest and SHEEP LICE were present and caused annoyance and loss where controls were not applied in NEW YORK.

CHICKEN BODY LOUSE (Menacanthus stramineus) moderately to heavily infested most farm flocks of chickens in the southeastern area of OHIO in early April. Lice activity occurred mostly at the vent of all birds. One heavy infestation revealed 15 lice per square inch of vent with 500+ lice per feather.

CAT FLEA (Ctenocephalides felis) and DOG FLEA (C. canis) infestations seemed to be heavier and more persistent than usual in RHODE ISLAND. Numerous complaints were received from all parts of the State in August and early September. An undetermined species of flea troubled workers in a large brooder house in Worcester County, MARYLAND, in April. Fleas were reported as a "vacation pest" on June 25 in SOUTH CAROLINA and they were a nuisance in homes rather generally in TENNESSEE. Cat and dog fleas caused considerable concern throughout OKLAHOMA, especially when infestations moved into homes. In NORTH DAKOTA, frequent reports of fleas in homes were received from various parts of the State. The only identified specimens in North Dakota were of dog flea from the Fargo area. Many reports of cat flea and dog flea infestations in homes were received from the Minneapolis-St. Paul area of MINNESOTA, and outlying areas. These species apparently were more numerous than in previous years. Dog flea was of some importance in OREGON in 1963. Both cat flea and HUMAN FLEA (Pulex irritans) were present in CALIFORNIA, but cat flea was the predominant species encountered. The year was conducive for a flea buildup.

BLOODSUCKING CONENOSE (Triatoma sanguisuga) became of concern to residents of the Hill County area of TEXAS and in west central Texas. A WESTERN BLOODSUCKING CONENOSE (T. protracta) was reported invading residences many times in CALIFORNIA, but in only a few instances were humans bitten as compared with the presence of the insect.

A moderate infestation of SWALLOW BUG (Oeciacus vicarius) was reported from Dennysville, MAINE, where swallows were nesting over a room window. The bugs reportedly were dropping from the nest causing annoyance to the occupants of the house. In PENNSYLVANIA, several infestations of swallow bug were noted and, in one instance, biting of humans was reported. BAT BUG (Cimex pilosellus) infestations were reported from Mt. Eaton in Wayne County, OHIO, on May 5. Occupants of the second floor bedrooms were annoyed. Bats were abundant in the attic.

VESPID WASPS were common in RHODE ISLAND in late summer and early fall, but the volume of complaints was less than in recent years. BEES and WASPS were a statewide problem in NEW JERSEY. Homeowners were quite concerned regarding the presence of these insects around homes and picnic areas. Since many natural water sources were eliminated due to the drought, bees and wasps were especially troublesome around swimming pools, refreshment stands and bird baths. YELLOW JACKETS were more numerous in late summer and fall in GEORGIA than in an average year. There were numerous complaints of people being stung. Vespid wasps were in about normal abundance in homes and other buildings in UTAH during 1963.

PUSS CATERPILLAR (Megalopyge opercularis) caused considerable attention during August and September in OKLAHOMA, but most specimens submitted for identification were not this species. Increased infestations and spread of AMERICAN DAGGER MOTH (Acronicta americana) in southern Washoe County, NEVADA, resulted in increases in the number of people developing a rash after handling the larvae.

A PICNIC BEETLE (Glischrochilus quadrisignatus) began appearing during the first warm days of May in WISCONSIN and was troublesome by the middle of June to picnickers. Although common, the species appeared to be less of a nuisance than in 1962.

Occurrences of a BROWN SPIDER (*Loxosceles reclusa*) in homes throughout OKLAHOMA were quite numerous, with occasional bites reported. In ILLINOIS, specimens of this spider were sent in for determination from Pulaski, Moultrie and Monroe Counties in 1963, making a total of six, the number of counties known to be infested in the State. This brown spider has never been reported from MICHIGAN, but inquiries regarding it were common in Wayne County following a September 22 Columbia Broadcasting Service report on the pest.

BLACK WIDOW SPIDER (*Latrodectus mactans*) was more numerous in residences than in past years in CALIFORNIA. It was very prevalent in new subdivisions. Populations in UTAH were about normal for the year.

HOUSEHOLD AND STRUCTURAL INSECTS

Highlights:

Collectively, TERMITES were the major structural pest problem in California, Missouri and Maryland. Overall, similar conditions probably exist in other States where termites occur, particularly those in the South. Various species of ANTS were a nuisance to homeowners in 1963, with CARPENTER ANTS apparently causing the most annoyance. CLOVER MITE and BOXELDER BUG were frequent invaders of homes during the spring and fall in numerous areas of the country. They were the subject of many complaints. EUROPEAN EARWIG was a considerable nuisance in residences in several areas of northern California and it is becoming a major source of insect pest annoyance in areas of Maine. In Arizona, another EARWIG (*Labidura riparia*) became a real nuisance in the southern area by invading homes. *L. riparia* was also a pest in Georgia and South Carolina.

COCKROACHES were, as usual, reported numerous times during 1963. BROWN-BANDED COCKROACH predominates in Alaska and probably does in California. GERMAN COCKROACH, ORIENTAL COCKROACH and AMERICAN COCKROACH were also of importance along with brown-banded cockroach in certain States. LARDER BEETLE was reported to be unusually numerous in many areas of Minnesota, and the pest was more common than recent years in Michigan. STRAWBERRY ROOT WEEVIL was a nuisance in homes in Maryland, Ohio, Michigan, Wisconsin, North Dakota and Nebraska. Locally, SPRINGTAILS, MILLIPEDS, CARPENTER BEES, HORNTAILS, FALSE CHINCH BUGS, FIELD CRICKETS, CLOTHES MOTHS, CARPET BEETLES, SPIDER BEETLES, POWDER-POST BEETLES and FLIES were troublesome to homeowners. Several States also reported infestations of various insects in food stored in the home.

WESTERN SUBTERRANEAN TERMITE (*Reticulitermes hesperus*), WESTERN DRYWOOD TERMITE (*Incisitermes minor*) and PACIFIC DAMPWOOD TERMITE (*Zootermopsis angusticollis*) were very prevalent statewide in CALIFORNIA, and collectively these termites were the major structural pest. Western subterranean termite and Pacific dampwood termite were also of some importance as structural pests in OREGON. Subterranean termites, including western subterranean termite, were approximately normal in numbers and/or injury for the year in UTAH. In Clark County, NEVADA, a DAMPWOOD TERMITE (*Paraneotermes simplicicornis*) heavily infested and damaged a home.

SUBTERRANEAN TERMITES (*Reticulitermes* spp.) were of concern to many residents in representative areas of TEXAS, and over 6,000 buildings were reported to have been treated for termites in KANSAS during 1963. In MISSOURI, swarming termites were observed in the central area in early April. Reports of termite damage were received from areas throughout the State. EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) is the most important structural pest in Missouri. A termite, Reticulitermes sp., was observed in a home at Arnegard, NORTH DAKOTA. The known species in that State are R. flavipes and R. tibialis. Reported infestations of subterranean termites in MICHIGAN were relatively few during the year. In OHIO, an infestation of I. minor was found in a wooden ceiling of a military air base near Fairborn (Greene County), west central area of the State.

The first swarms of eastern subterranean termite were recorded in RHODE ISLAND at Cranston, Providence County, on February 22, and swarming continued regularly through late May. The volume of complaints in Rhode Island was perhaps a little lighter than average. Termite swarms in central and northern NEW JERSEY appeared shorter in duration than in 1962. In southern counties, there was a considerable reduction in the number of swarms. Complaints of termites were about normal for the year in NEW HAMPSHIRE.

Subterranean termites (Reticulitermes spp.) were again the most important pests of building structures in MARYLAND. In the spring, numerous winged forms were received for identification. A similar condition was reported from VIRGINIA. Eastern subterranean termite was reported to be swarming in a basement of a Wake County, NORTH CAROLINA, home during the third week of February. A number of specimens were received for determination during February, March and April.

POWDER-POST BEETLES (Lyctus spp.) were of some importance as structural pests in OREGON in 1963, and they were of concern to residents in several areas of TEXAS. WHARF BORER (Nacerdes melanura) adults were found emerging in a Newport, RHODE ISLAND, building on June 18. SOUTHERN LYCTUS BEETLE (Lyctus planicollis) and a SHOT-HOLE BORER (Scolytus sp.) were recorded as structural pests in MISSOURI during the year. In CALIFORNIA, a NEW-HOUSE BORER (Arhopalus productus) occurred in new dwellings at about the same level as past years.

BLACK CARPENTER ANT (Camponotus pennsylvanicus) was found and reported in VERMONT homes in usual numbers, and complaints concerning unspecified ants were about normal in NEW HAMPSHIRE. There were numerous reports of house infestations of CARPENTER ANTS (Camponotus spp.) in RHODE ISLAND. The increase is apparently associated with the increase in woodland homes. PAVEMENT ANT (Tetramorium caespitum) was probably the most ubiquitous ant in Rhode Island, with alates of this species commonly confused with those of termites. Complaints were received statewide throughout the year. It is believed that the frequence in which pavement ant was received for identification was associated with building styles-patios, breezeways, slabs and fireplaces. LARGER YELLOW ANT (Acanthomyops interjectus) swarms were conspicuous in the Metropolitan Providence area of Rhode Island in September.

Pavement ant, larger yellow ant and carpenter ants were troublesome throughout the year in NEW JERSEY. Many people associated the mating flights of these ants with termite swarms. In MARYLAND, various species of ants, especially larger yellow ant and pavement ant, caused annoyance to homeowners throughout the State. A similar situation existed in VIRGINIA, when winged forms of ants, especially Acanthomyops spp., Camponotus spp. and pavement ant, were common in many homes from early March through early June and in early October. Larger yellow ant and carpenter ants (Camponotus spp.) were received a number of times for identification in NORTH CAROLINA.

Carpenter ants (Camponotus spp.) were of concern to many residents in representative areas of TEXAS, and samples were submitted by homeowners for identification and control recommendations on numerous occasions in MICHIGAN. Carpenter ants were also observed in homes throughout NORTH DAKOTA, and they were unusually abundant in CALIFORNIA dwellings during the year where they were often confused by homeowners with termites. Carpenter ants damaged several log buildings and a few utility poles where wood preservative was not applied heavily enough in ALASKA. Fence posts of untreated spruce are also commonly attacked in Alaska. About normal numbers of carpenter ants were reported in UTAH.

CARPENTER BEE (Xylocopa virginica) was a nuisance to homeowners in SOUTH CAROLINA in 1963. There were more complaints in the upper Piedmont than at any time in the last 30 years. Carpenter bee was also reported as a structural pest in MISSOURI in 1963.

HORNTAILS (Sirex spp.) were reported many times from new dwellings in CALIFORNIA. These pests have been a continuing problem for the past three years in that State. In ALASKA, a HORNTAIL (Urocerus flavicornis) was numerous around buildings made of green spruce and emerged from larger timbers. Occasionally this species would emerge into homes in Alaska.

CLOVER MITE (Bryobia praetiosa) was reported on numerous occasions in VERMONT homes. House infestations were present in all parts of RHODE ISLAND from April through late May. It was heaviest in newer suburbs with pampered lawns. Individual infestations seemed unusually heavy. Numerous complaints were received from Warwick and Cranston in mid-October. Fall complaints are unusual in Rhode Island. Clover mite was one of the major household pests throughout NEW JERSEY during the spring, fall and winter months. The majority of the problem areas were in housing developments or older established residences with well kept lawns. Clover mite continued a serious nuisance pest throughout most of the spring period in DELAWARE, especially in New Castle County, and similar conditions were reported in MARYLAND, PENNSYLVANIA, VIRGINIA and NORTH CAROLINA although some infestations were noted during August in Virginia and complaints were received during the first four months of the year in North Carolina. Clover mite invaded homes rather generally in TENNESSEE and was reported during late March in SOUTH CAROLINA. Infestations were reported throughout the year by homeowners in OHIO and it was observed in homes generally in NORTH DAKOTA. The pest entered homes in Livingston, Harlowton, Plentywood, Glendive and Bozeman, MONTANA; and migrations into homes and motels in NEVADA were heavy in the winter and spring, especially in the northern and western counties. Clover mite was also more abundant in homes than normal during the spring of 1963 in UTAH; several thousand homes were invaded. Clover mite continued as a household pest in CALIFORNIA by invading residences in many locations, and it was a household invader in the Anchorage area of ALASKA.

BOXELDER BUG (Leptocoris trivittatus) was a nuisance in several communities of NEW JERSEY during the fall and early winter months, and it migrated into PENNSYLVANIA homes. In the fall, this species invaded many homes in all sections of MARYLAND and caused considerable alarm. Numerous reports were also received from March through early June and late August through November in VIRGINIA. Boxelder bug was generally a nuisance in TENNESSEE and many homes in the central area of OHIO were invaded in 1963, but populations were fewer than in 1962 in this area of Ohio. In MICHIGAN, fewer than the usual number of reports were received during the late summer and fall months indicating a reduced number of homeowner problems from this species entering homes in the State. Boxelder bug was observed in homes throughout NORTH DAKOTA in 1963. The species was more abundant than normal in UTAH where several thousand homes were invaded in fall and winter, and light infestations were found in many homes and yards in Maricopa and Pinal Counties, ARIZONA, in 1963. In NEVADA, this species created a nuisance by entering homes in eastern areas and another species, L. rubrolineatus, was similarly a nuisance in western areas.

FALSE CHINCH BUGS (Nysius spp.) entered homes in heavy numbers in Elko and Lyon Counties, NEVADA, and populations were above average in UTAH. Several very large migrations were observed in the latter State, some of which caused considerable alarm to homeowners. Adults of HACKBERRY-NIPPLE-GALL MAKER (Pachypsylla celtidismamma) and of P. celtidisvesicula continued to be a nuisance around windows and doors of KANSAS homes as they sought overwintering quarters in the fall.

EUROPEAN EARWIG (Forficula auricularia) was a considerable nuisance in residences in several areas of northern CALIFORNIA and it became generally abundant and invaded homes in northern IDAHO during the late summer. The pest was approximately normal in number for the year in UTAH. European earwig is becoming a major source of insect pest annoyance to homeowners throughout Androscoggin, Sagadahoc, York and Cumberland Counties, MAINE. Numerous inquiries were received by State and Federal authorities for information on control measures for this species in Maine. In RHODE ISLAND, European earwig appeared in June and reached large numbers in August. The initial buildup seemed slower than usual. Earwigs, probably European earwig, were found in VERMONT at Burlington, St. Johnsbury and Waterbury.

An EARWIG (Labidura riparia) was a local problem in residence in El Cajon area of CALIFORNIA. This earwig is extending its range in California from the desert area where it first appeared a few years ago. This is a particularly objectionable species since it is odorous. In ARIZONA, severe invasions of L. riparia into homes in late summer and early fall were a real nuisance in the southern area. Continuous control measures were necessary in order to rid homes of this pest in that State. Infestations of this earwig were heavy and general over GEORGIA from the Griffin area southward. In SOUTH CAROLINA, L. riparia is a pest of the last 10 years which appears to spend the summer outdoors and migrates indoors with cool weather.

BROWN-BANDED COCKROACH (Supella supellectilium) was the most numerous of the cockroach problems in ALASKA; GERMAN COCKROACH (Blattella germanica) was a poor second. Brown-banded cockroach was of some importance as a household pest during 1963 in OREGON, and it was more abundant than normal in UTAH. German cockroach was also about normal in number in Utah. In NEVADA, increases in infestations of several species of cockroaches were noted in Clark and Washoe Counties. Several species were also a problem in households in CALIFORNIA, with brown-banded cockroach probably the most prevalent.

Brown-banded cockroach, german cockroach and ORIENTAL COCKROACH (Blatta orientalis) were reported numerous times from throughout MISSOURI, and these reports tend to indicate that cockroaches are the most important household pests in the State. In KANSAS, the usual number of questions pertaining to cockroaches were received. Cockroaches were pests in homes generally in TENNESSEE. German cockroach and brown-banded cockroach were reported a few times in VIRGINIA, and numerous reports concerning these two species were received in MARYLAND. Brown-banded cockroach continues to be a serious household pest in areas of New Castle County, DELAWARE. German cockroach infestations in NEW JERSEY were quite heavy in several major cities, and AMERICAN COCKROACH (Periplaneta americana), oriental cockroach and brown-banded cockroach infestatations appeared to increase somewhat over occurrences during 1962 in New Jersey. In RHODE ISLAND, German cockroach, oriental cockroach and brown-banded cockroach infestations were occasionally reported.

FIELD CRICKETS (Gryllus spp.) probably occurred as a household pest in CALIFORNIA more often in 1963 than in the past few years. They continued to be numerous around homes and other buildings during the summer in KANSAS and NORTH DAKOTA, but populations in OHIO were lower than in 1962. Another CRICKET (Nemobius fasciatus) was abundant and caused annoyance around homes, filling stations, motels and other buildings in ILLINOIS in late August and it invaded some residential areas of NEBRASKA in July and August.

CLOTHES MOTHS seem to be decreasing in importance in ALASKA and they were normal during 1963 in UTAH. Infestations in SOUTH CAROLINA appear to be more of a problem during the winter than thirty years ago, which is to be expected with heated homes. In NORTH DAKOTA, infestations of WEBBING CLOTHES MOTH (Tineola bisselliella) were observed in homes over the State. CASEMAKING CLOTHES MOTH (Tinea pellionella) was of concern to many residents in representative areas of TEXAS. In CALIFORNIA, a BROWN-DOTTED CLOTHES MOTH (Acedes fuscipunctella) occurred more frequently than previously; BROWN HOUSE MOTH (Hofmannophila pseudospretella) occasionally occurred in residences; and casemaking clothes moth was about normal.

Unspecified MOTH FLIES were reported numerous times in PENNSYLVANIA, and Telmatoscopus albipunctatus appeared in several homes in Anne Arundel and Prince Georges Counties, MARYLAND.

Several species of CARPET BEETLES were reported more frequently in 1963 than past years in CALIFORNIA, and VARIED CARPET BEETLE (Anthrenus verbasci) and BLACK CARPET BEETLE (Attagenus piceus) were of some importance as household pests in OREGON. Anthrenus sp. is increasing in numbers and destructiveness in ALASKA. Black carpet beetle was reported several times infesting dried foods in NORTH DAKOTA homes and the pest was severe locally in carpeting in Minot. Attagenus spp. and Anthrenus spp. continue to be major fabric pests in MICHIGAN. Carpet beetles, especially black carpet beetle, were less active than in most years in RHODE ISLAND, and occasional reports of FURNITURE CARPET BEETLE (Anthrenus flavipes) and black carpet beetle attacking woolen rugs and clothes were received in VIRGINIA.

BROWN SPIDER BEETLE (Ptinus clavipes) and an AUSTRALIAN SPIDER BEETLE (P. ocellus) were common household pests periodically during 1963 in CALIFORNIA, and adults of the latter species were abundant and annoying in residences in Skagit County, WASHINGTON, during the year. In PENNSYLVANIA, several spider beetles were recorded a number of times including Mezium affine, Gibbium psylloides, Ptinus hirtellus and WHITE-MARKED SPIDER BEETLE (Ptinus fur).

LARDER BEETLE (Dermestes lardarius) was reported to be unusually numerous in many areas of MINNESOTA, probably associated with accumulations of face flies in wall spaces. Adults and larvae were also reported from all sections of IOWA, being of concern in several locations. In MICHIGAN, reports of larval infestations, especially in ceilings, were more common than during other recent years. Larder beetle populations appeared to be about normal in UTAH.

Several States reported infestations of various insects in food stored in the home. INDIAN-MEAL MOTH (Plodia interpunctella) was reported several times in NORTH DAKOTA; more times than normal in PENNSYLVANIA; and was of some importance in OREGON and RHODE ISLAND. SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) was also of some importance in OREGON, RHODE ISLAND and VERMONT, and infestations of SQUARE-NECKED GRAIN BEETLE (Cathartus quadricollis) were observed over NORTH DAKOTA. RED FLOUR BEETLE (Tribolium castaneum) and CONFUSED FLOUR BEETLE (T. confusum) were widespread in cupboard and package mixes and in dry cereals in ALASKA, and the former species was of some importance in OREGON. DRUG-STORE BEETLE (Stegobium paniceum) was reported numerous times in PENNSYLVANIA as was CIGARETTE BEETLE (Lasioderma serricorne) in that State. Cigarette beetle was also fairly abundant in CALIFORNIA and reports of infestations were received in MISSOURI.

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) adults entered homes in MARYLAND and caused a nuisance at several localities over the State during the summer. Many homes were also invaded in OHIO, MICHIGAN, WISCONSIN, NORTH DAKOTA and NEBRASKA. Migrations in Wisconsin started in early June and continued into late August, and complaints in that State emanated mostly from individuals living in the sandier areas of the State. Residential buildings affected in Nebraska were in the central sandhills areas. Other weevils annoying to homeowners were Trachyphloeus bifoveolatus in OREGON and WASHINGTON, Calomycterus setarius in RHODE ISLAND, and ASIATIC OAK WEEVIL (Cyrtepistomus castaneus) in VIRGINIA and WISCONSIN. In the latter State, asiatic oak weevil was a problem, but not to the extent that strawberry root weevil was.

GROUND BEETLES were extremely abundant in Buffalo, Dawson and Lincoln Counties, NEBRASKA, in homes, motels and stores; and extremely large numbers of Harpalus sp. were observed at Bismark, NORTH DAKOTA, in mid-July where it was found in and around buildings in the downtown area. Many areas of ARIZONA were plagued by large numbers of DARKLING BEETLES (Blapstinus spp.) invading homes and causing a general nuisance. ELM LEAF BEETLE (Galerucella xanthomelaena) also invaded homes in PENNSYLVANIA, RHODE ISLAND and VIRGINIA, but not in great numbers.

Bamboo was infested in homes and other places in several States. A brown BAMBOO POWDER-POST BEETLE was found several times in NEW JERSEY; BAMBOO POWDER-POST BEETLE (*Dinoderus minutus*) occurred at a specialty shop in Dover, Tuscarawas County, OHIO; and *Lyctus africanus* and *Trogoxylon prostomoides* have been a continuing problem in many locations of CALIFORNIA.

CLUSTER FLY (*Pollenia rudis*) was abundant around houses during the spring and very troublesome in houses during early and late fall in VERMONT. Flies, especially cluster fly and FACE FLY (*Musca autumnalis*), were reported a few times in homes in VIRGINIA. A MARCH FLY (*Dilophus strigulata*) became a heavy nuisance in Los Angeles County, CALIFORNIA, in November.

SPRINGTAILS were particularly abundant in the spring of the year in CALIFORNIA and there were many complaints of household invasion. They also migrated into many homes in the central area of NEW JERSEY during June and July. PSOCIDS were abundant and annoying in residences in San Juan County, WASHINGTON, and some nuisance reports were received in CALIFORNIA and ALASKA. PILLBUGS were pestiferous in and around homes in nearly all parts of TEXAS.

MILLIPEDS were unusually bothersome around homes in NORTH CAROLINA, with heavy populations reported both during the spring and fall. A few reports were received during August in VIRGINIA and decreased populations were noted in SOUTH CAROLINA and NEW JERSEY. Millipeds were a nuisance in basements and around homes in southeast NORTH DAKOTA in 1963.

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